CM-4221 Installation Manual

Quasar CM-4221 Series Mini-Dome Camera User and Installation Guide

Installation and configuration instructions for the CM-4221 Series IP Mini-dome Camera

- **CM-4221-00** Indoor camera with varifocal lens
- **CM-4221-01** Outdoor camera with varifocal lens
- **CM-4221-10** Indoor camera with motorized lens
- **CM-4221-10-I** Indoor camera with motorized lens and infrared LED illuminator
- **CM-4221-11** Outdoor camera with motorized lens
- **CM-4221-11-I** Outdoor camera with motorized lens and infrared LED illuminator

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Contents

Contents ..... **i**
1 Overview **1**
1.1 Features 1
1.2 Package Contents 2
2 Introduction to the CM-4221 Series IP Mini-dome Camera **3**
2.1 CM-4221-00 Indoor Varifocal Camera Dimensions 3
2.2 CM-4221-01 Outdoor Varifocal Camera Dimensions 4
2.3 CM-4221-10/10-I/11/11-I Indoor and Outdoor Motorized Camera Dimensions 5
2.4 Camera Connectors 6
3 System Requirements **7**
4 Installation **8**
4.1 Indoor Installation 8
4.2 Outdoor Installation 8
4.3 Power and Ethernet Cable Connection 9
4.4 Initial Camera Configuration 10
4.5 Remove the Base Plate 11
4.6 Mounting Instructions 12
4.6.1 Mounting the CM-4221-00, CM-4221-10, or CM-4221-10-I Indoor Camera 12
4.6.2 Mounting the CM-4221-01, CM-4221-11, or CM-4221-11-I Outdoor Camera 15
4.7 Adjusting and Framing-Up the Camera View 18
5 Searching and Accessing the Camera with Device Search **20**
6 Configuration and Operation **26**
6.1 Browser-Based Viewer Introduction 27
6.2 Home Page 29
6.2.1 CM-4221-00/01 Varifocal Camera Home Page 29
6.2.2 CM-4221-10/10-I/11/11-I Motorized Camera Home Page 31
6.3 System-Related Settings 34
6.3.1 Host Name and System Time Setting 35
6.3.2 Security 37
6.3.2.1 User 38
6.3.2.2 HTTPS 41
6.3.2.3 IP Filter 48
6.3.2.4 IEEE 802.1X 49
6.3.3 Network 51
6.3.3.1 Basic 52
6.3.3.2 QoS 56
6.3.3.3 SNMP Settings 57

6.3.3.4 UPnP 59
6.3.4 DDNS 61
6.3.5 Mail 63
6.3.6 FTP 64
6.3.7 HTTP 65
6.3.8 Application 66
6.3.9 Motion Detection 74
6.3.10 Network Failure Detection 78
6.3.11 Tampering Alarm 80
6.3.12 Storage Management 84
6.3.13 Recording 87
6.3.14 File Location 88
6.3.15 Iris Adjustment 89
6.3.16 View Information 90
6.3.16.1 View Log File 91
6.3.16.2 User Information 92
6.3.16.3 View Parameters 94
6.3.17 Factory Default 95
6.3.18 Software Version 97
6.3.19 Software Upgrade 98
6.3.20 Maintenance 101
6.4 Video and Audio Streaming Settings 103
6.4.1 Video Resolution and Rotate Type 104
6.4.1.1 NTSC System Settings 105
6.4.1.2 PAL System Settings 108
6.4.2 Video Compression 114
6.4.3 Video OCX Protocol 117
6.4.4 Video Frame Rate 118
6.4.5 Audio Mode and Bit Rate Settings 121
6.5 Camera Settings 123
6.5.1 Exposure Setting 124
6.5.2 White Balance Setting 125
6.5.3 Picture Adjustment 126
6.5.4 Backlight 127
6.5.5 Digital Zoom 128
6.5.6 IR Function 128
6.5.7 WDR Function 129
6.5.8 Noise Reduction 129
6.5.9 TV System 130
6.6 Logout 130
7 Appendix 132

7.1 Appendix A: Technical Specifications 133
7.2 Appendix B: Internet Security Settings 136
7.3 Appendix C: Install UPnP Components 140
7.4 Appendix D: Deleting the Existing DC Viewer 143
7.5 Appendix E: Deleting Temporary Internet Files 144
7.6 Appendix F: Contacting DVTel 146
7.7 Appendix G: Accessories 147

CM-4221 Installation Manual

1 Overview

The Quasar CM-4221 Series IP Mini-dome Camera provides real-time, Full HD H.264 multi-streaming with the highest quality image. Its compact, sophisticated mechanical design and snap-in camera chassis facilitate easy installation.

The CM-4221 series includes the following models (collectively referred to as CM-4221-xx):

- CM-4221-00 Indoor Camera with varifocal lens
- CM-4221-01 Outdoor Camera with varifocal lens
- CM-4221-10 Indoor Camera with motorized lens
- CM-4221-10-I Indoor Camera with motorized lens and infrared IR illuminator
- CM-4221-11 Outdoor Camera with motorized lens
- CM-4221-11-I Outdoor Camera with motorized lens and infrared IR illuminator

Important: If you are using DVTel Latitude, we recommend that you configure the camera's settings via the AdminCenter. This is because the camera's web-based interface might be overwritten by Latitude settings. Refer to the Latitude online help for information regarding configuring camera settings.

1.1 Features

Following are key features of the CM-4221-xx cameras:

• H.264 and MJPEG compression	• HTTP streaming MJPEG	• Progressive scan CMOS sensor
• Edge motion detection	• Motion detection with region of interest masking	• Historical motion-detection levels detected /recorded at frame levels.
• Detection event driven alarms	• Alarm input driven events	• Relay output actions on alarm
• Built-in web application/web server	• FTP upload (up to two locations)	• Upload alarm images to FTP
• Dual HTTP notification server support (up to two servers)	• Send images on alarm to e-mail	• E-Mail SMTP alarm notification (up to two e-mails)
• Micro SD recording support	• Record snapshots to SD card on alarm	• Sequential snapshot numbering
• SNMP v1/v2 and SNMP traps	• Security IP restricted access allow/deny list	• UPnP support
• Electronic day/night (ICR)	• Analog video output	• Full-time BNC analog output
• Privacy masks	• WDR and ATW	• 3DNR image noise reduction
• ONVIF support	• RTSP support	• Supports PoE /12VDC/24VAC
• Multiple users	• Group permissions	• Per-user permissions
• Tampering detection and notification	• Two encoder streams available	• Low-lux mode and backlight compensation
• Vandal-proof IP66 enclosure	• Motorized lens	• Infrared LED illuminator

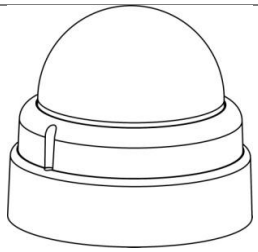
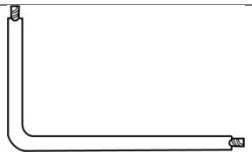
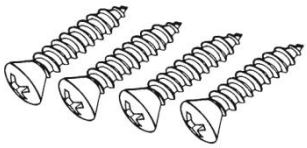
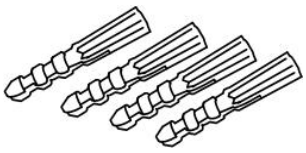
(CM-4221-01/11/11-I)	(CM-4221-10/11/11-I)	(CM-4221-10-I/11-I)

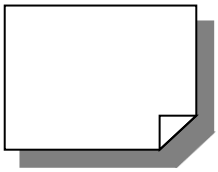
NOTE: MJPEG is not supported by Latitude.

1.2 Package Contents

Check that the package contains the items listed below.

Indoor and Outdoor Camera Package Contents

<table>
<tr><td> 
Mini-dome camera</td><td colspan="2">
DC jack cable</td></tr>
<tr><td>
Power terminal block</td><td colspan="2"> 
Star-bit tool (Torx wrench)</td></tr>
<tr><td> 
Self-tapping screws (×4)</td><td> 
Plastic screw anchors (×4)</td><td>
Rubber washers (×6)</td></tr>
</table>

CD (Bundled software and documentation)	 Quick-start guide	

2 Introduction to the CM-4221 Series IP Mini-dome Camera

This chapter provides the camera dimensions for reference before installation. Definition of each connector on the camera's PCB board is also specified.

Related Links

CM-4221-00 Camera Dimensions

CM-4221-01 Camera Dimensions

CM-4221-10, CM-4221-10-I, CM-4221-11, and CM-4221-11-I Camera Dimensions

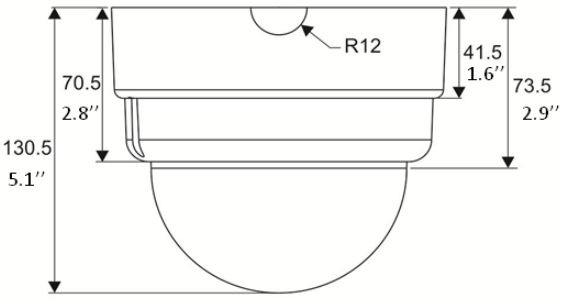
Camera Connectors

Appendix A: Technical Specifications

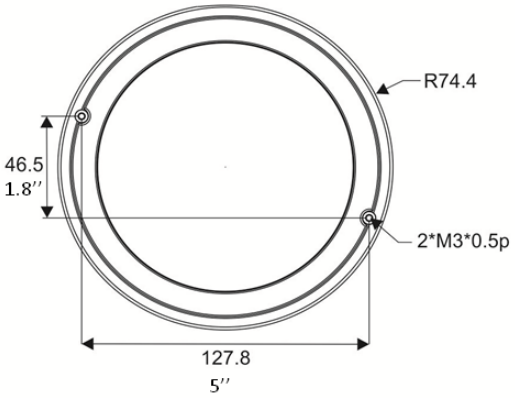
2.1 CM-4221-00 Indoor Vari-focal Camera Dimensions

The CM-4221-00 IP Indoor Mini-dome Camera's dimensions are shown below.

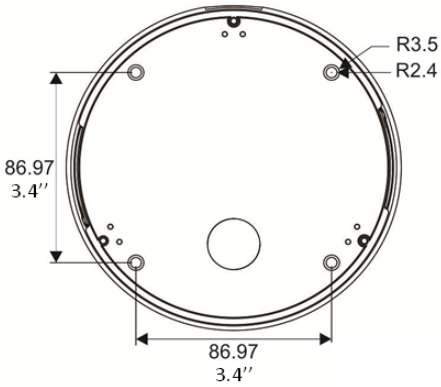
Front View



Top View

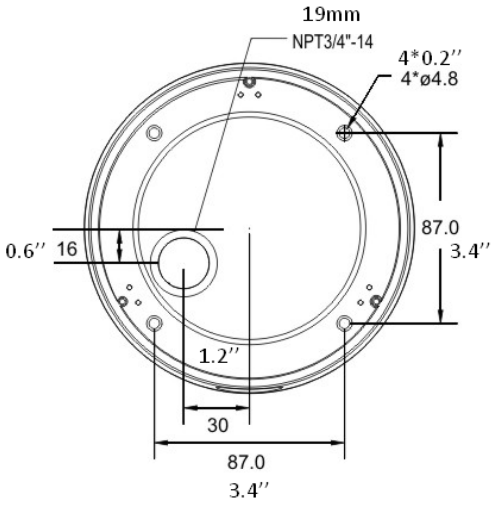


Bottom View

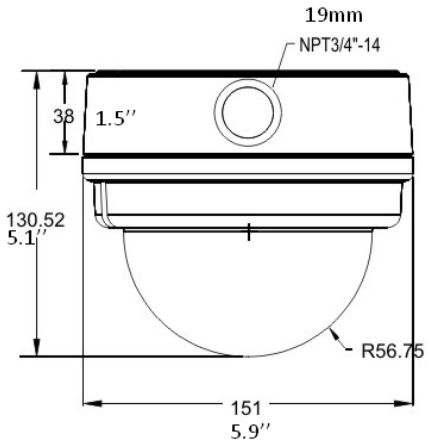


2.2 CM-4221-01 Outdoor Vari-focal Camera Dimensions

The CM-4221-01 Vari-focal IP Outdoor Mini-dome Camera's dimensions are shown below.



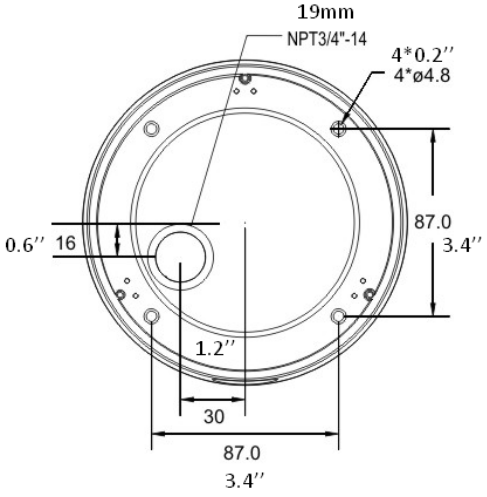
Top View



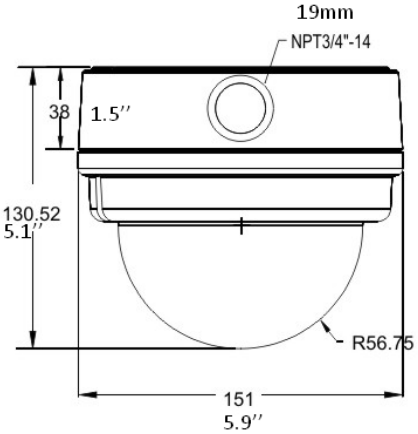
Side View

2.3 CM-4221-10/10-I/11/11-I Indoor and Outdoor Motorized Camera Dimensions

The CM-4221-10, CM-4221-10-I, CM-4221-11, and CM-4221-11-I Indoor and Outdoor Motorized IP Mini-dome Camera dimensions are shown below.



Top View



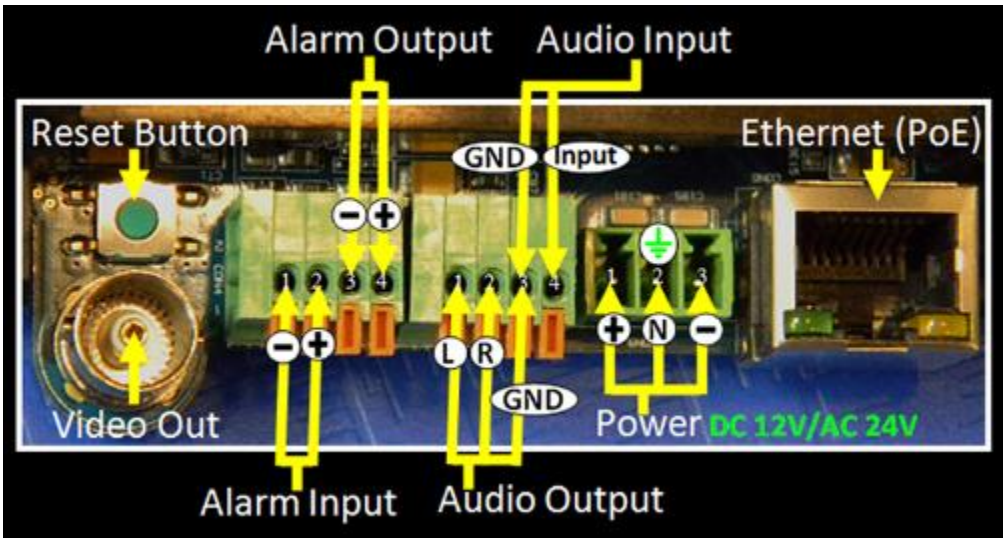
Side View

Related Link

Appendix A: Technical Specifications

2.4 Camera Connectors

The diagram below shows the CM-4221-xx's reset button and various connectors. Definition for each connector is given as follows.



Connector		Pin No.	Definition	Remarks
Reset Button		-	Restore to factory default	
BNC		-	Analog Video Output	
Alarm I/O		1	GND (Input－)	Alarm connection
		2	Input＋	
		3	Output－	
		4	Output＋	
Audio I/O		1	Output (L)	Two-way audio transmission
		2	Output (R)	
		3	GND	
		4	Input	
Power	**12VDC**	1	Power	Power connection
		2	Reserved	
		3	GND	
	24VAC	1	Power-1	
		2	Earth GND	
		3	Power-2	

RJ-45	-	10/100 Mbps Ethernet/PoE

3 System Requirements

To access the camera via a web browser, ensure that your PC has the proper network connection and meets system requirements as described below.

Items	System Requirement
Personal Computer	Intel® Pentium® M, 2.16GHz or Intel® Core™2 Duo, 2.0GHz, 2GB RAM or more
Operating System	Windows Vista, Windows XP, Windows 7
Web Browser	Microsoft Internet Explorer 6.0 or later Firefox Chrome Safari
Network Card	10Base-T (10 Mbps) or 100Base-TX (100 Mbps) operation
Viewer	ActiveX control plug-in for Microsoft IE

4 Installation

Following are instructions for indoor and outdoor installation of the CM-4221 series cameras.

4.1 Indoor Installation

Read the instructions provided in this chapter thoroughly before installing the CM-4221-00, CM-4221-10, or CM-4221-10-I. Following are additional considerations for indoor installation:

- There must be a fuse or breaker at the starting point of the electrical wiring infrastructure.
- For indoor installations, such as industrial applications, the camera must be protected from elements such as damaging fumes, metallic dust, extreme temperatures, soot, moisture, over spray, etc.
- Do not place the camera on or near radiators and heat sources.
- All electrical work must be performed in accordance with local regulatory requirements.

4.2 Outdoor Installation

Read the instructions provided in this chapter thoroughly before installing the CM-4221-01, CM-4221-11, or CM-4221-11-I camera. Following are additional considerations for outdoor installation:

- For outside wiring installation, always use weatherproof equipment, such as boxes, receptacles, connectors, etc.
- For electrical wiring, use the properly rated sheathed cables for conditions to which the cable will be exposed (for example, moisture, heat, UV, physical requirements, etc.).
- Plan ahead to determine where to install infrastructure weatherproof equipment. Whenever possible, ground components to an outdoor ground.
- Use best security practices to design and maintain secured camera access, communications infrastructure, tamper-proof outdoor boxes, etc.
- All electrical work must be performed in accordance with local regulatory requirements.

Related Links

Power and Ethernet Cable Connection

Initial Camera Configuration

Remove the Base Plate

Mounting the CM-4221-00, CM-4221-10, or CM-4221-10-I IP Indoor Mini-dome Camera

Mounting the CM-4221-01, CM-4221-11, or CM-4221-11-I IP Outdoor Mini-dome Camera

Adjusting and Framing Up the Camera View

4.3 Power and Ethernet Cable Connection

Power Connection

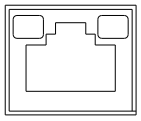
Make sure the camera's power cable is properly connected. Refer to the pin definition table in Camera Connectors. If using Power over Ethernet (PoE), make sure Power Sourcing Equipment (PSE) is available on the connected network. All electrical work must be performed in accordance with local regulatory requirements.

Ethernet Cable Connection

Use of Category 5 Ethernet cable is recommended for network connection. For best transmission quality, cable length should not exceed 100 meters (328 feet). Connect one end of the Ethernet cable to the RJ-45 connector of the CM-4221-xx camera and the other end to the network switch or PC.

NOTE: You can use an Ethernet crossover cable to connect the CM-4221-xx directly to a PC.

Check the status of the link indicator and activity indicator LEDs. If the LEDs are unlit, check the LAN connection.

	The green Link LED indicates a good network connection. The orange Activity LED flashes to indicate network activity.

4.4 Initial Camera Configuration

To perform the initial camera configuration:

1.) Using the supplied star-bit tool, unscrew the mini-dome cover, and remove it.

2.) Plug the CAT5 cable into the camera's Ethernet port. If the network doesn't provide PoE 802.3af, wire a properly rated 12VDC/24VAC power supply into the terminal-block plug and plug it into the power terminals. See polarity noted in HD Series Connections image.

3.) Do one of the following:
- Copy and run the DeviceSearch.exe from the included CD.
- From the Latitude Sidebar, run the Unified Configurator by selecting **Applications ▶ Device Configuration Tool** and then on the Unified Configurator screen, click **DVTel HD Series**.

4.) In the DeviceSearch application, click **Device Search** and do the following:

a.) In the search results, click on the camera to select it.

b.) Right-click and select from the shortcut menu **Network Setup**.

c.) In the dialog that appears, select **Static IP**.

d.) Enter the **IP Address**, **Gateway** and **Netmask** (network mask) as needed and click **OK**.

5.) Disconnect the Ethernet cable and, if you are using a power supply, turn off the power to the power supply and unplug it. The camera is ready for deployment in a site installation (mounting).

Note: The camera can be connected to a PC for bench installation via an Ethernet cross-cable.

Note: The camera default IP Address is 192.168.0.250 and default subnet mask is 255.255.255.0.

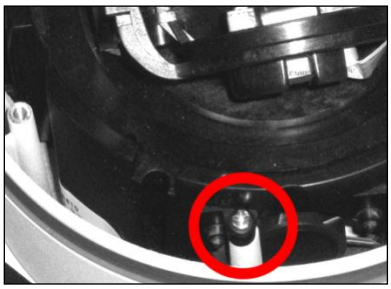
Tip: A camera setup adapter, such as *Veracity Pinpoint*, can be used to connect a laptop directly to the camera when using PoE.

4.5 Remove the Base Plate

1.) If you have not already removed the mini-dome cover, unscrew and remove it using the star-bit tool supplied with the camera.

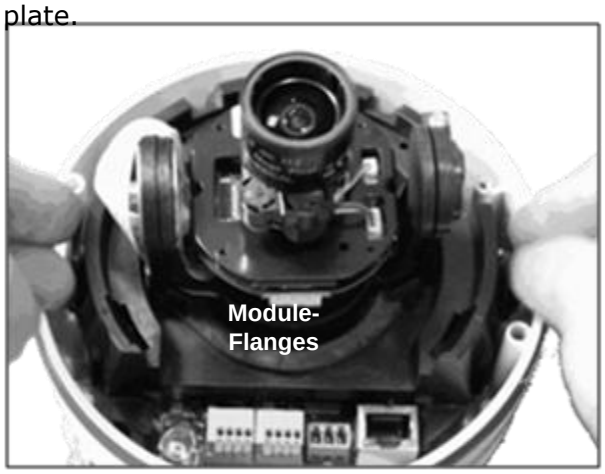
2.) Press the sides of the inner cover inward and remove the cover.

3.) Unscrew the module-fastening screw.



Caution: The CM-4221-00 is an indoor CM camera and should be kept in a clean and dry indoor environment. Operating temperature should be maintained within -10°C~50°C. Operating humidity is 10% to 90% (non-condensing). The camera should be kept dry, free from water condensation, dust, dirt, and smoke.

4.) Press in the camera module flanges to unsnap the camera module from the base plate.



4.6 Mounting Instructions

Following are mounting instructions for the CM-4221 series cameras.

4.6.1.1.1 IR Camera (CM4221-10-I & CM4221-11-I) Mounting Tips

To eliminate the IR reflection it is mostly recommended to apply the following steps:

1. Clean the bubble from dirt and finger prints.
2. Make sure the bubble has no scratches.
3. Fasten the screw that secures the snap-in chassis in order to have the rubber sealed against the bubble
4. Avoid aiming the IR where there are nearby objects closer than the scene of interest which might reflect back into the lens.

4.6.1.1.2 Mounting the CM-4221-00, CM-4221-10, or CM-4221-10-I Indoor Camera

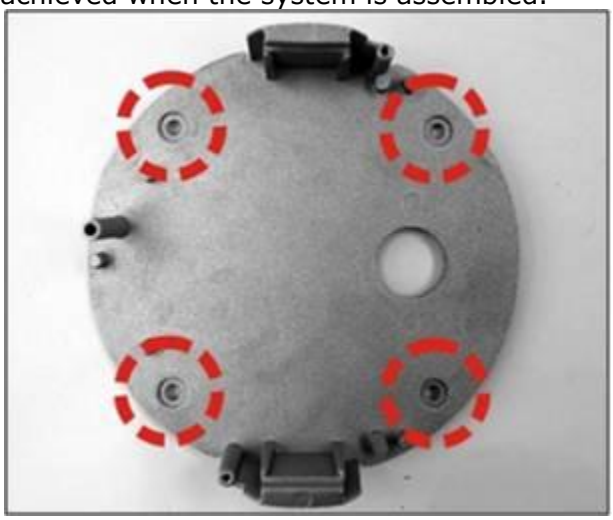
1.) Do one of the following:

- For drilled wall or ceiling mounting:

a.) Use a pointed pencil and the base plate as a template to mark the mounting surface through the plate holes where the four screw holes will need to be drilled.

Important: Before marking and drilling the holes, ensure that the base plate alignment is oriented correctly so that the required camera field of view can be

achieved when the system is assembled.



b.) In the marked locations, drill each hole using a drill-bit of a slightly smaller diameter than the supplied screw anchors (molly-plug anchor). You want to achieve a snug insertion so that the plug expansion holds firm after the screws are screwed in.

c.) Fully insert the supplied anchors into drilled holes. You may need to tap them flush with the wall using a finishing hammer.

- For installing on a 4S recessed electrical box:

a.) Have a qualified installer (check your local electrical codes) rough-in the 4S recessed electrical box and run the wires and power (if not PoE) through the wall/conduits to the box location.

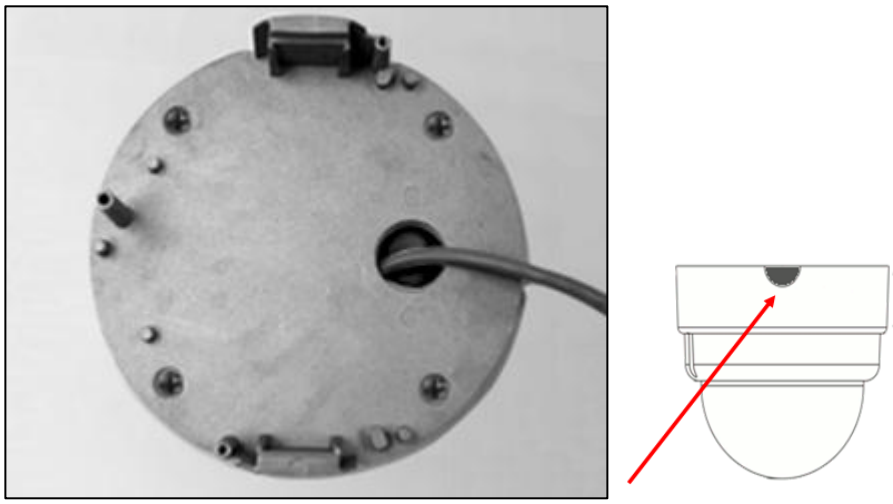
b.) Ensure that the box is sufficiently sturdy (attach to the wall stud, ceiling joist, or reinforced surface as needed) to securely hold the weight of the camera.

- For bracket, pole and pendant installations:
  - Follow the hanging device installation instructions.

2.) If running the cables through the back, thread the power and Ethernet cables and any other wires (such as a relay output, alarm input, audio in, or audio out) through the back wire entry. If you are not wiring from within the wall, you can run the wires through the slot on the side of the mini-dome. Punch out the half circle slot and run the wires through this slot.

Tip: Even if you are not using alarm inputs and audio input/output at the time of installation, you may want to consider pre-wiring these connections for future use.

NOTE: The power cable is **not** required if using PoE.



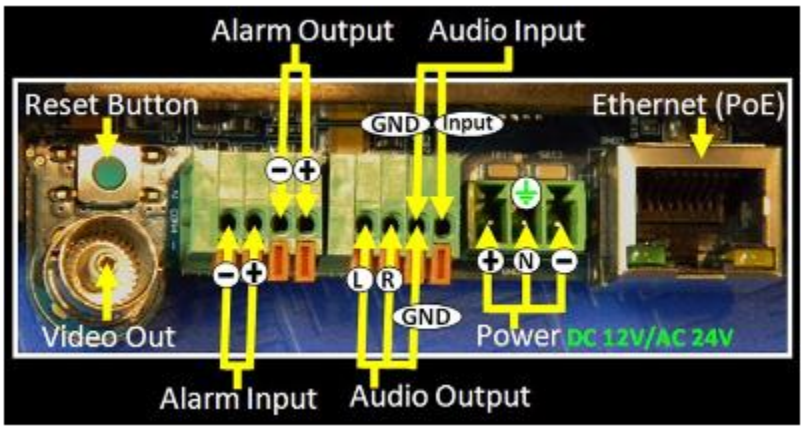
3.) Thread the wires through the base plate and screw it to the predrilled wall, ceiling, CM Series Mini-dome Recessed Mount, CM Series Mini Mini-dome Corner Mount, or 4S electrical box. Check that the installation is not flimsy, will not wobble, and is flush with the mounting surface.

Tip: Use shims for shoring up mounts on uneven surfaces.

4.) Snap the camera module back on the base plate with the wiring threaded through the gap at the module base and then screw in the module-fastening screw.

5.) Plug the CAT5 cable into the camera Ethernet port and, if needed, plug the power terminal block into the power terminals.

6.) If applicable, wire the Alarm In, Alarm Out, Audio In, and Audio Out terminal blocks to external devices.



HD Series Connections

7.) If needed, connect the other end of the CAT5 cable to the network and turn on the power from the power supply.

Note: Do not reassemble the camera's inner cover and mini-dome cover until after hardware configurations and lens adjustments are made.

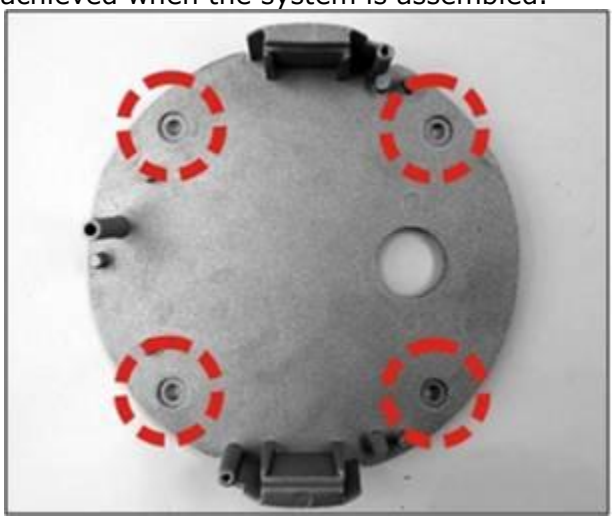
4.6.2 Mounting the CM-4221-01, CM-4221-11, or CM-4221-11-I Outdoor Camera

1.) Do one of the following:

- For drilled wall or ceiling mounting:

a.) Use a pointed pencil and the base as a template to mark the mounting surface through the plate holes where the four screw holes need to be drilled.

Important: Before marking and drilling the holes, ensure that the base plate alignment is oriented correctly so that the required camera field of view can be achieved when the system is assembled.



b.) In the marked locations, drill each hole using a drill-bit of a slightly smaller diameter than the supplied screw anchors (molly-plug anchor). You want to achieve a snug insertion so that the plug expansion holds firm after the screws are screwed in.

c.) Fully insert the supplied anchors into drilled holes. You may need to tap them flush with the wall using a finishing hammer.

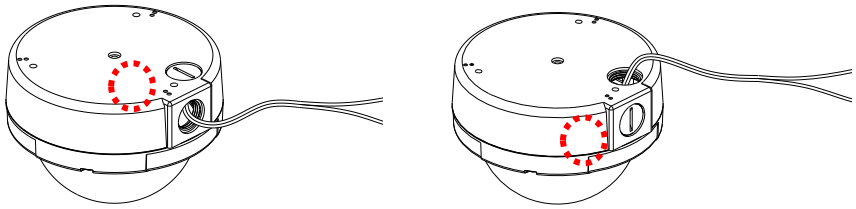
- For installing on a 4S recessed electrical box:

a.) Have a qualified installer (check your local electrical codes) rough-in the 4S recessed electrical box and run the wires and power (if not PoE) through the wall/conduits to the box location.

b.) Ensure that the box is sufficiently sturdy (attach to the wall stud, ceiling joist, or reinforced surface as needed) to securely hold the weight of the camera.

- For bracket, pole and pendant installations:
  - Follow the hanging device installation instructions.

2.) Thread the power and Ethernet cables and any other wires (such as a relay output, alarm input, audio in, or audio out) through the wire entry. If you are not wiring from within the wall, you can run the wires through the cable entry hole on the side of the dome. If needed, you may need to unscrew the disk from the cable entry hole and screw it into the alternate unused conduit cable entry hole in order to seal it.



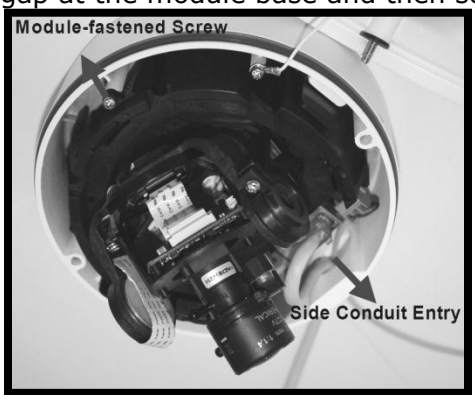
Tip: Even if you are not using alarm inputs and audio input/output at the time of installation, you may want to consider pre-wiring these connections for future use.

NOTE: The power cable is **not** required if using PoE.

3.) Thread the wires through the base and screw it to the predrilled wall, ceiling, CM Series Mini Dome Recessed Mount, CM Series Mini Dome Corner Mount, or 4S electrical box. Check that the installation is not flimsy, will not wobble, and is flush with the mounting surface.

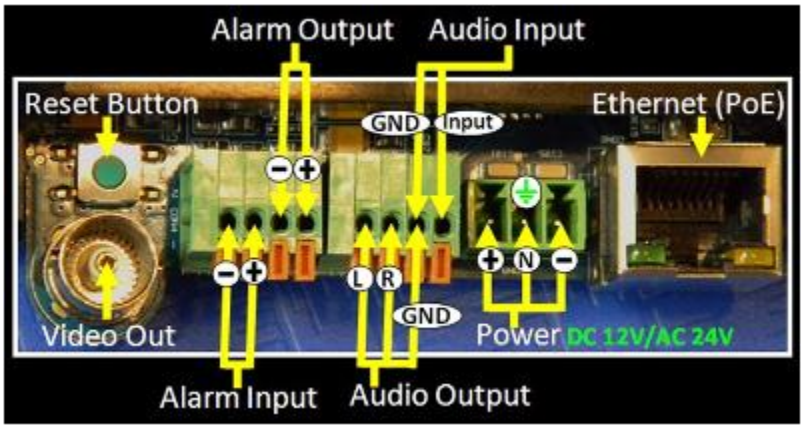
Tip: Use shims for shoring up mounts on uneven surfaces.

4.) Snap the camera module back on the base with the wiring threaded through the gap at the module base and then screw in the module-fastening screw.



5.) Plug the CAT5 cable into the camera's Ethernet port and, if needed, plug the power terminal block into the power terminals.

6.) If applicable, wire the Alarm In, Alarm Out, Audio In, and Audio Out terminal blocks to external devices.



HD Series Connections

7.) If needed, connect the other end of the CAT5 cable to the network and turn on the power from the power supply.

Note: Do not reassemble the camera's inner cover and dome cover until after hardware configurations and lens adjustments are made.

4.7 Adjusting and Framing-Up the Camera View

Once you have the camera attached to the network and running, you need to frame up the scene and adjust the camera settings to optimize the picture for your individual scenes. If you are using Latitude, you may consider scheduling different settings for changing ambient conditions throughout the day, week, month or seasons.

To adjust and frame-up the camera view:

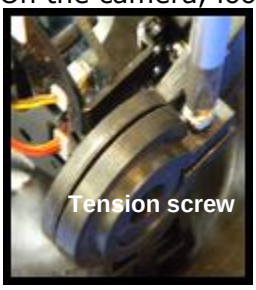
1.) In the DeviceSearch application, click **Device Search** and in the results click to select the camera, right-click to open the shortcut menu, and select **Browse**, or enter the camera's IP address as a URL in a web browser.

2.) When the Internet browser connects to the camera and prompts for login, do the following:

a.) Log in using the default user name "**Admin**" and password "**1234**".

b.) Allow the ActiveX to download and choose to install the DVTel Web Player.

3.) On the camera, loosen the screw on the tensioning collar of the camera tilt axis.



4.) On the camera, adjust the camera rotation, pan, and tilt angles as required for the desired view of the scene. When finished, retighten the tilt-arm tension screw.

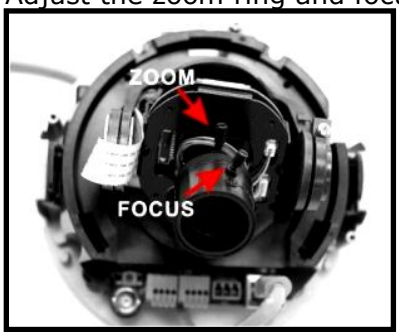
Caution: To prevent camera damage, do not over extend the tilt range beyond -10° to 90°.

Tip: To view greater image detail for more accurate high-definition focusing, on the *Web Base Viewer* homepage, click and use the full screen view for checking adjustments.

IMPORTANT: Best focusing results can be achieved when the lens iris is fully open (such as at night in low light). This prevents loss of sharpness if light levels are reduced at night.

To achieve this during the day, in the *Web Base Viewer* go to the **Camera ▶ Exposure** screen and select from the **Exposure Setting** menu **Auto-shutter** mode. Save changes and complete the focusing steps. When finished, restore your exposure settings as needed.

5.) Adjust the zoom ring and focus ring for your scene.



6.) Replace the camera's inner cover.

7.) Replace the mini-dome cover and screw.

5 Searching and Accessing the Camera with Device Search

Device Search provides a central location for listing all the DVTel CM and CF camera models accessible over the network. Once listed, you can right-click on each camera to access and change the network settings.

Once the network settings are changed, you can search again to relist the units and then configure the units via the web interface.

If you are working with DVTel Latitude, configure the unit with a static IP address rather than with DHCP. This ensures that the IP address will not automatically change in the future and interfere with configurations and communication.

You will need to make the camera accessible for your network addressing. For initial access to the camera, you can do either of the following to search and configure the camera's network settings via Device Search:

- If you have the AdminCenter in Latitude, you can access the Device Configuration Tool (Unified Configurator) from the Applications menu and then click the DVTel HD Series button.
- You can run DeviceSearch.exe, which can be found in the "DeviceSearch" folder in the supplied CD.

To install DVTel Web Player software online:

For the initial access to the camera, a client program (DVTel Web Player) prompts to install on your PC when connecting to the camera. If the web browser doesn't allow DVTel Web Player installation, check the Internet security settings or ActiveX controls and plug-in settings to continue the process. See Appendix B: Internet Security Settings.

Important: Users who have previously installed the DVTel Web Player (DC Viewer) on the PC should first delete the existing DC Viewer from the PC before accessing the camera. For information on how to uninstall and clear Temporary Internet Files, see Deleting the Existing DC Viewer.

To configure the communication settings of the CM-4221-xx camera:

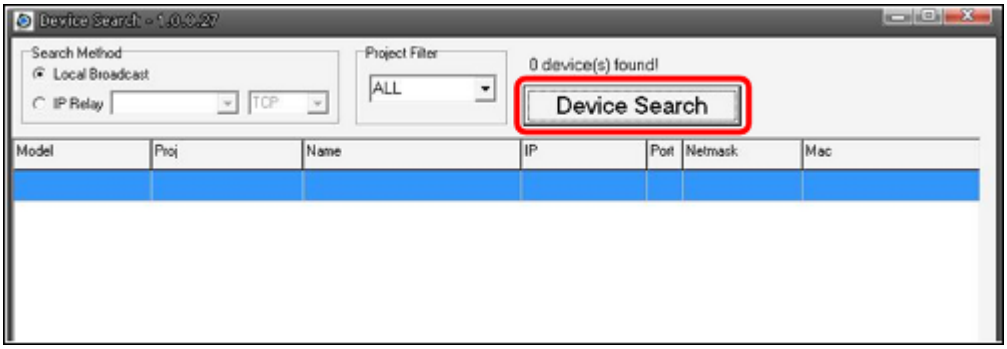
1.) Connect the camera to the network on the same VLAN/LAN as the workstation. You can use a cross-cable to directly connect it to the machine.

2.) If your network supports the default, open the DeviceSearch by doing one of the following:

   a.) If you have the AdminCenter in Latitude, you can access the Device Configuration Tool (Unified Configurator) from the Applications menu and then click the DVTel HD Series button.

   b.) Run the DeviceSearch.exe which can be found in the "DeviceSearch" folder in the supplied CD.

3.) In the Device Search application, click the "**Device Search**" button.



4.) If you have not disabled the Windows Firewall, a security alert window will pop up. Do the following:

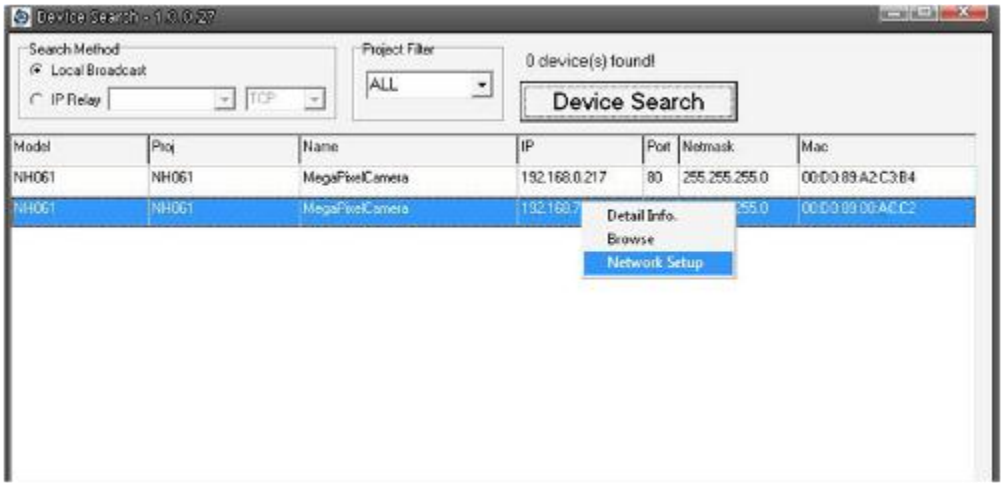
a.) Click "**Unblock**" to continue. Latitude users should consult the Latitude Installation Instructions on disabling the Windows Firewall.

Windows Security Alert
To help protect your computer, Windows Firewall has blocked some features of this program.
Do you want to keep blocking this program?
Name: DeviceSearch
Publisher: Unknown
Keep Blocking
Unblock
Ask Me Later
Windows Firewall has blocked this program from accepting connections from the Internet or a network. If you recognize the program or trust the publisher, you can unblock it. When should I unblock a program?

b.) Click "**Device Search**" again. All the discovered IP devices will be listed in the page, as shown in the figure below. The camera's default IP address is: **192.168.0.250**.

5.) Right-click on the camera whose network property you wish to change, and from the menu that opens, select "**Network Setup**". The "**Network Setup**" dialog displays.

Tip: Record the camera's MAC address for future identification.



6.) Do the one of the following.

For DHCP (not supported by Latitude):

a.) Select "**DHCP**". Do not use for Latitude.

b.) Click "**Apply**". When prompted with instructions to search again after one minute, click "**OK**".

c.) After one minute, click "**Device Search**".

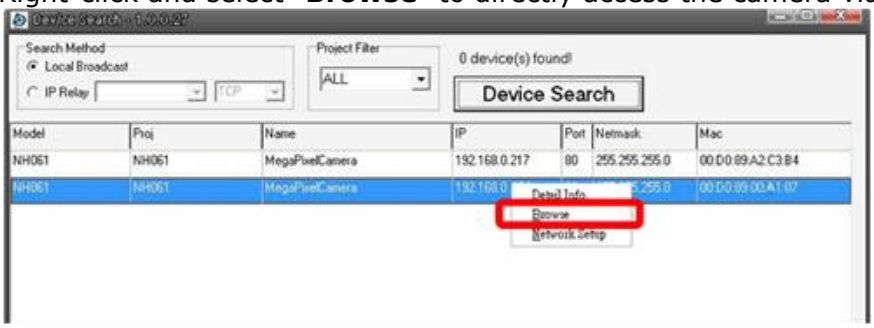
For Static IP (recommended for Latitude users):

a.) Select "**Static IP**" (preferable for security and Latitude users). In the IP Address, Gateway, and Netmask, enter the respective values for your LAN/VLAN (optional DNS).

b.) Click "**Apply**". When prompted with instructions to search again after one minute, click "**OK**".

c.) After one minute, click "**Device Search**". The communication settings should now be changed and ready for you to install the CM-3221-xx camera on the network. You may access it either via the browser-based viewer or Latitude NVMS.

7.) Right-click and select "**Browse**" to directly access the camera via a web browser.



The default web browser opens and requests access to the camera IP address.

8.) When the web browser contacts the camera IP, do the following:

a.) When prompted for the login, enter username and password for the camera in the login prompt that appears.

The default login ID and password for the Administrator are:

Login ID	Password
Admin	1234

NOTE: ID and password are case-sensitive.

b.) If the Information Bar (just below the URL bar) prompts for permission to install the ActiveX Control for displaying video in the browser (see the figure below), right-click on the Information Bar. Select "**Install ActiveX Control**…" to allow the installation.

Favorites
Web Slice Gallery
network HD Camera
Page
Safety
Tools
This website wants to install the following add-on: 'DVTel Web Player' from 'DVTel'. If you trust the website and the add-on and want to install it, click here...
Install This Add-on for All Users on This Computer...
What's the Risk?
Information Bar Help
DVTEL
Logout
2007/01/18 23:38
Click here to install the following ActiveX control: 'DVTel Web Player' from 'DVTel'...

c.) If you receive a security warning window prompt, click "**Install**".

Internet Explorer - Security Warning
Do you want to install this software?
Name: DVTel Web Player
Publisher: DVTel
More options
Install
Don't Install
While files from the Internet can be useful, this file type can potentially harm your computer. Only install software from publishers you trust. What's the risk?

d.) If the wizard appears for installing the component application DC Viewer, follow the steps of the wizard to complete the installation.

NOTE: If you change the password and you are using the DVTel Latitude AdminCenter Discovery feature, deselect all other proprietary types. Select "**DVTel HD Series**" so that you can configure the new password in the <**Discovery**> tab settings.

Additionally, users can change the camera's network property (either DHCP or Static IP) directly in the device finding list. Refer to the following section for changing the camera's network property.

6 Configuration and Operation

The CM-4221-xx camera is provided with a browser-based configuration interface for video playback and recording. In this chapter, information about main page introduction, system related settings and camera settings are described in detail.

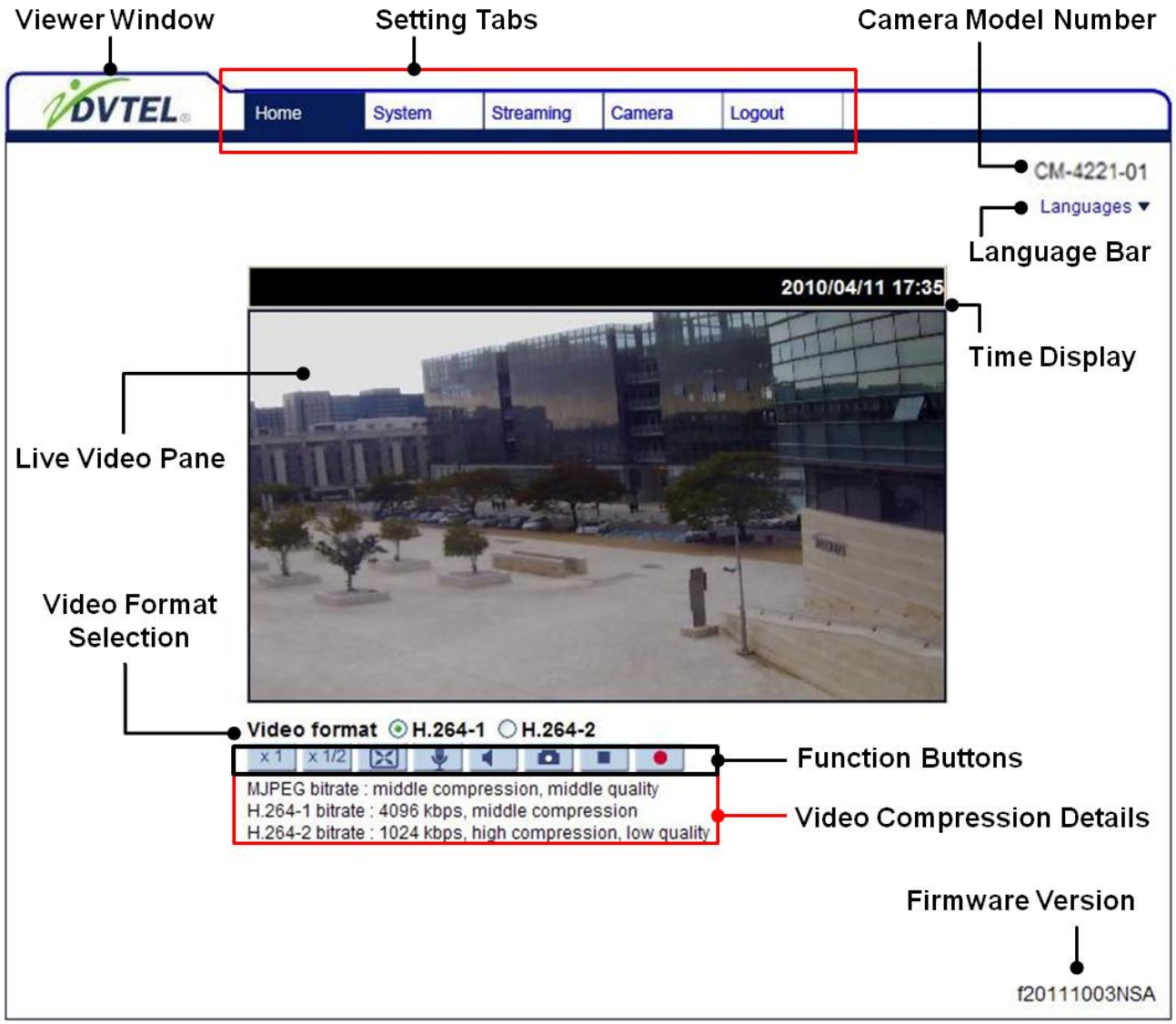
Additionally, if you have DVTel Latitude, many of the configurations and features of DVTel's NVMS provide configuration and automation of the camera.

This section includes the following information:

- Browser-Based Viewer Introduction
- Home Page
- System-Related Settings
- Video and Audio Streaming Settings
- Camera Settings
- Logout

6.1 Browser-Based Viewer Introduction

The figure below shows the main page of the camera user interface.



At the top of the **Viewer Window** is the Navigation Bar, which contains five tabs: Home, System, Streaming, Camera, and Logout.

- **Home Page**
  Users can monitor live video of the targeted area.

- **System Settings**
  The administrator can set host name, system time, root password, network related settings, etc. Further details are discussed in System-Related Settings.
- **Streaming Settings**
  The administrator can modify video resolution and rotate type and select audio compression mode in this page.
- **Camera Settings**
  Users can adjust various camera parameters, including <Exposure>, <White Balance>, <Brightness>, <Sharpness>, <Contrast>, <Saturation>, <Hue>, <Backlight>, <Digital Zoom>, <IR Function>, <WDR Function>, <Noise Reduction>, and <TV System>.

  NOTE: The IR Function is available only on CM-4221-10-I and CM-4221-11-I.
- **Logout**
  Click on the tab to re-login the camera with another username and password.

In the top right-hand corner of the Viewer Window, the **Camera Model Number** is displayed.

Below the camera model number is the **Language Bar**. Supported languages include English, German, French, Italian, Simplified Chinese, Traditional Chinese, Russian, and Korean.

In the center of the Viewer Window is the **Live Video Pane**, which displays the image that the camera is monitoring.

On the right side of the black bar at the top of the Live Video Pane is the **Time Display**.

Under the Live View Pane is the **Video Format Selection**, enabling you to select H.264-1 or H.264-2.

Below the Video Format Selection are the **Function Buttons**, which are discussed in the following section.

Under the Function Buttons are the **Video Compression Details**, including bit rate, compression, and quality.

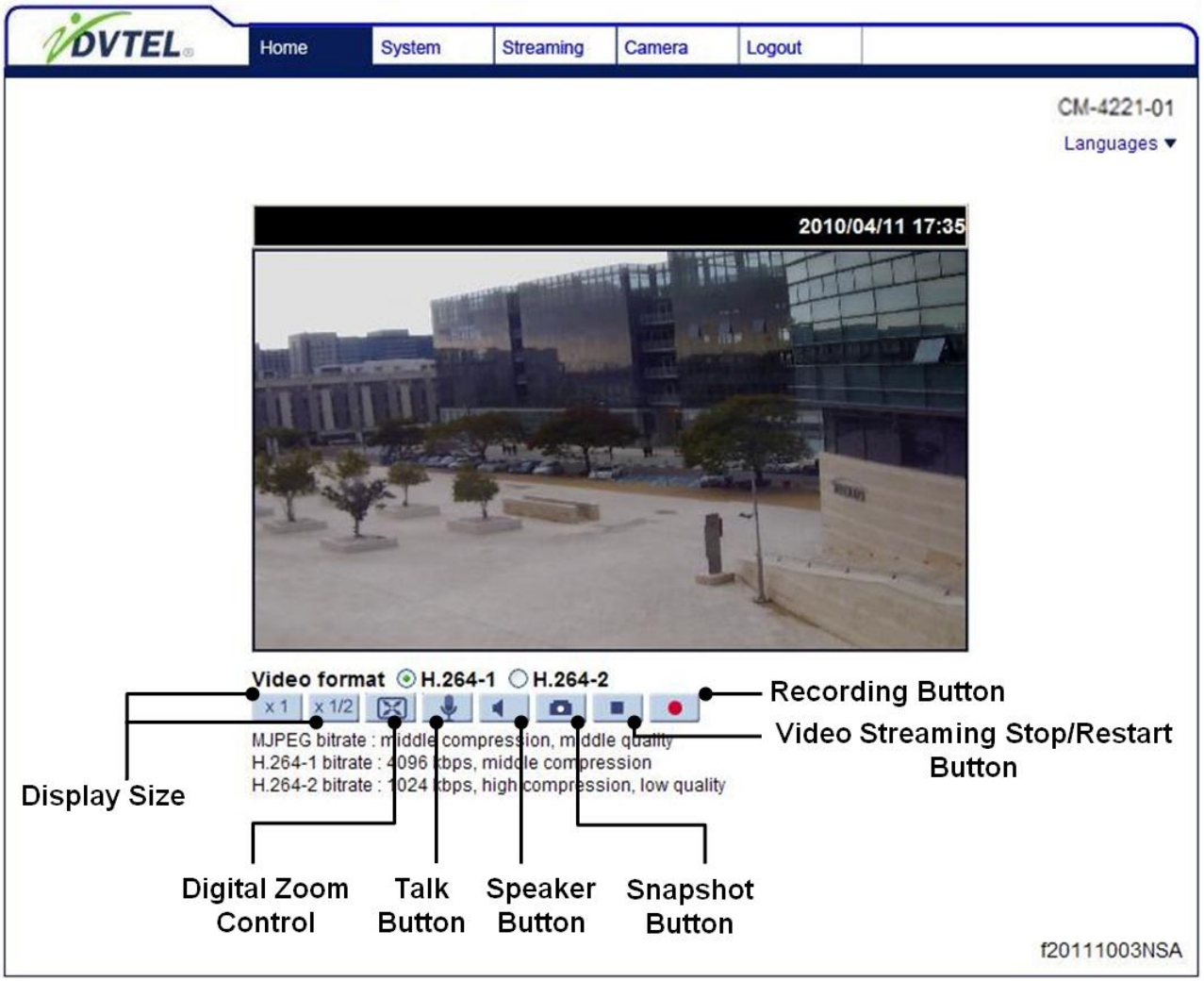
In the bottom right-hand corner of the Viewer Window, the **Firmware Version** of the camera is displayed.

6.2 Home Page

Function buttons are located at the bottom of the Home page, as seen below.

6.2.1 CM-4221-00/01 Varifocal Camera Home Page

All models in the CM-4221-xx series include the following function buttons, which are displayed below.



Display Size Adjustment (x1/x½)

The image display size can be adjusted to full-screen or half-screen.

Digital Zoom Control

Click on this button to view the monitored image in full screen mode. Double-click on the screen to exit Digital Zoom mode and return to the Home page.

Talk button (on/off)

The Talk function allows the local site to talk to the remote site. Click on the button to switch it on/off. Refer to the Security section (Add user>Talk/Listen) for further details. This function is available only to a user who has been granted this privilege by the Administrator.

Speaker button (on/off)

Press the Speaker button to mute/activate the audio.

Snapshot button

Press this button to automatically save the JPEG snapshots in the specified location. The default location to save snapshots is: C:\. To change the storage location, refer to File Location.

Video Streaming Stop/Restart button (stop/restart)

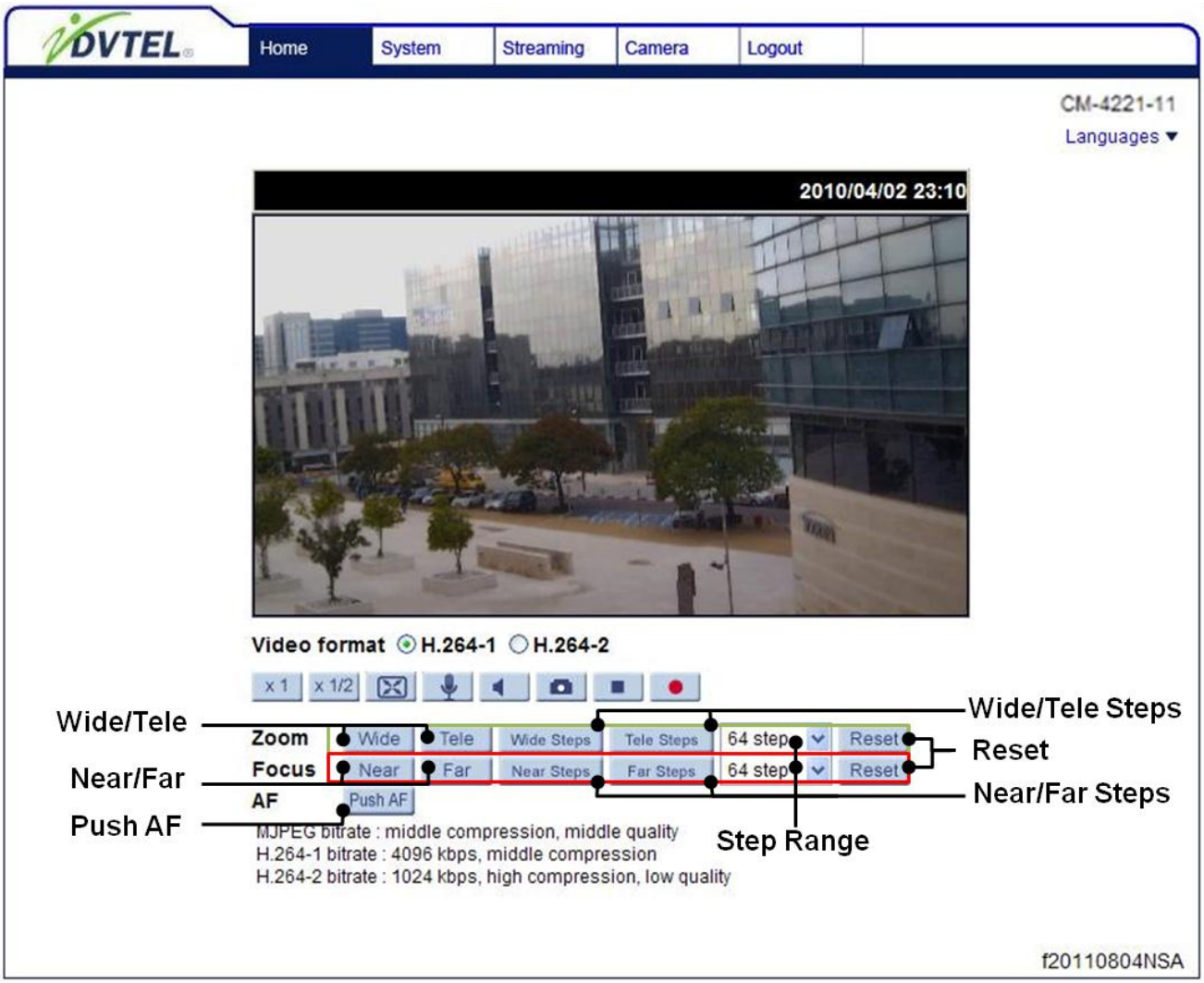
Press the stop button to disable video streaming and to display the live video as black. Press the restart button to show the live video again.

Web Recording button (on/off)

Pressing the <Recording> button will store recordings from the Live View in the location specified on the local hard drive, which can be configured in the "File Location" (snapshot) page. The default storage location for the web recording is: C:/. Refer to File Location for details.

6.2.2 CM-4221-10/10-I/11/11-I Motorized Camera Home Page

The CM-4221-10, CM-4221-10-I, CM-4221-11, and CM-4221-11-I, which feature a motorized lens, include the following function buttons in addition to those shown above for the CM-4221-00/01.



Wide/Tele buttons

Hold the Tele/Wide button to implement continuous zoom adjustment.

Near/Far buttons

Hold the Near/Far button to implement continuous focus adjustment.

Push AF button

Press the Push AF button once to adjust Zoom or Focus.

Wide/Tele Steps buttons

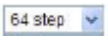
Press the Wide/Tele Steps buttons to alternate the zoom between Wide and Tele views within a user-defined range of steps, which can be selected from the drop-down menu shown below.

Near/Far Steps buttons

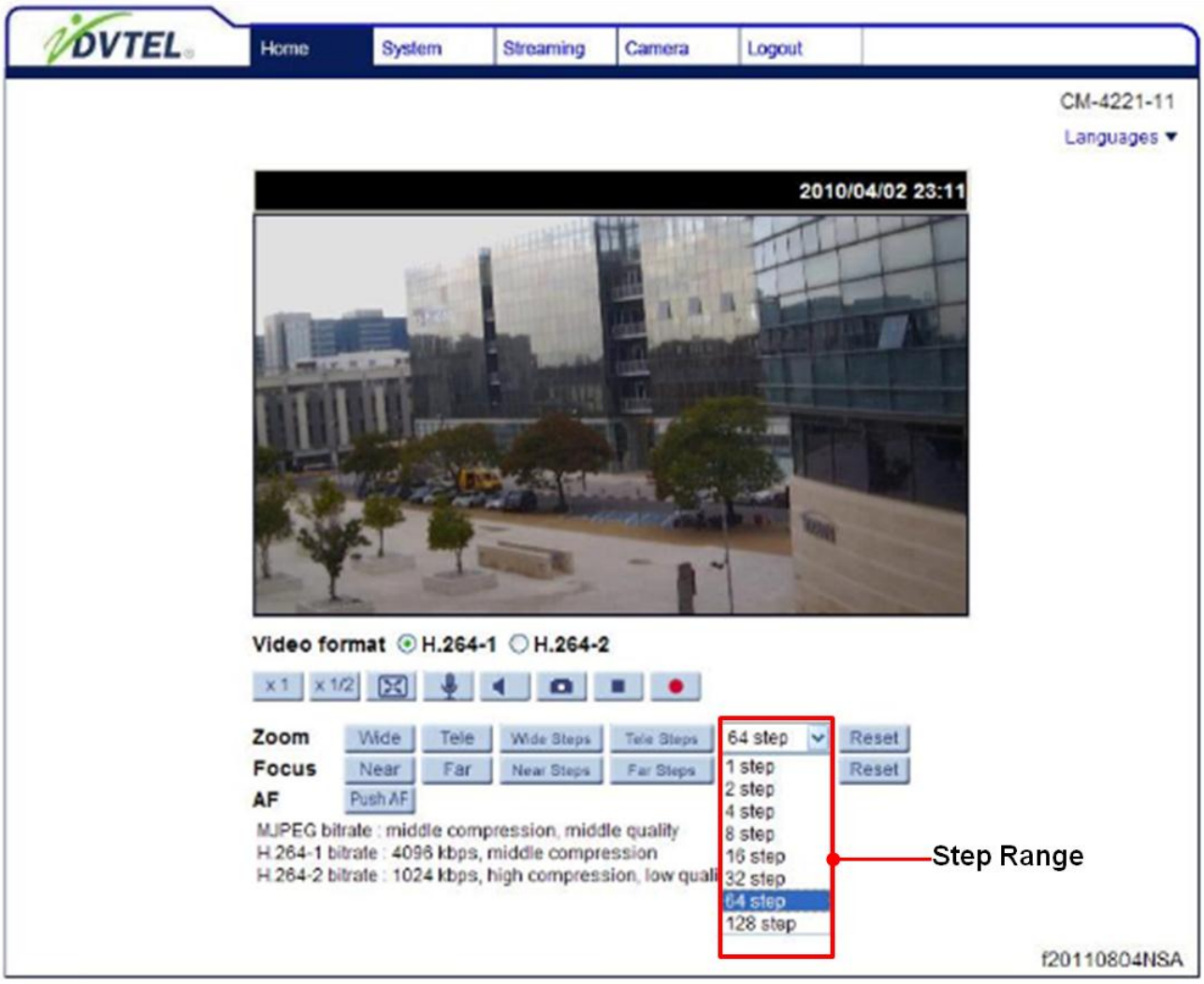
Press the Near/Far buttons to alternate the focus between near and Far views within a user-defined range, which can be selected from the drop-down menu.

Reset button

Press the Reset button to calibrate the camera lens at full wide end and infinity focus simultaneously.

Step Range 

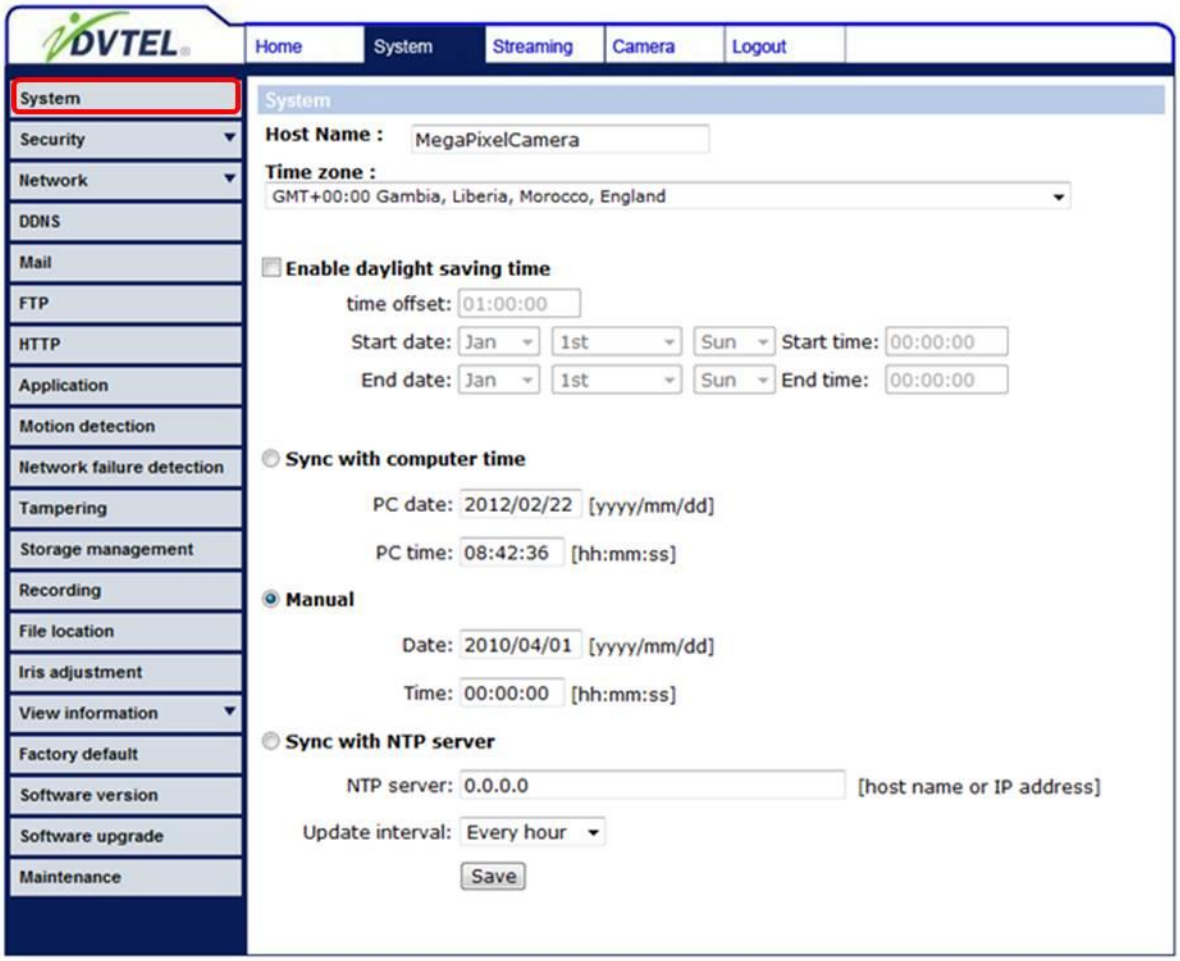
Select from a user-defined range of steps, which can be selected from the drop-down menu below.



6.3 System-Related Settings

The figure below shows all categories under the <**System**> tab. Each category in the sidebar is explained in the following sections.

NOTE: The **System** configuration page is accessible only by the Administrator.

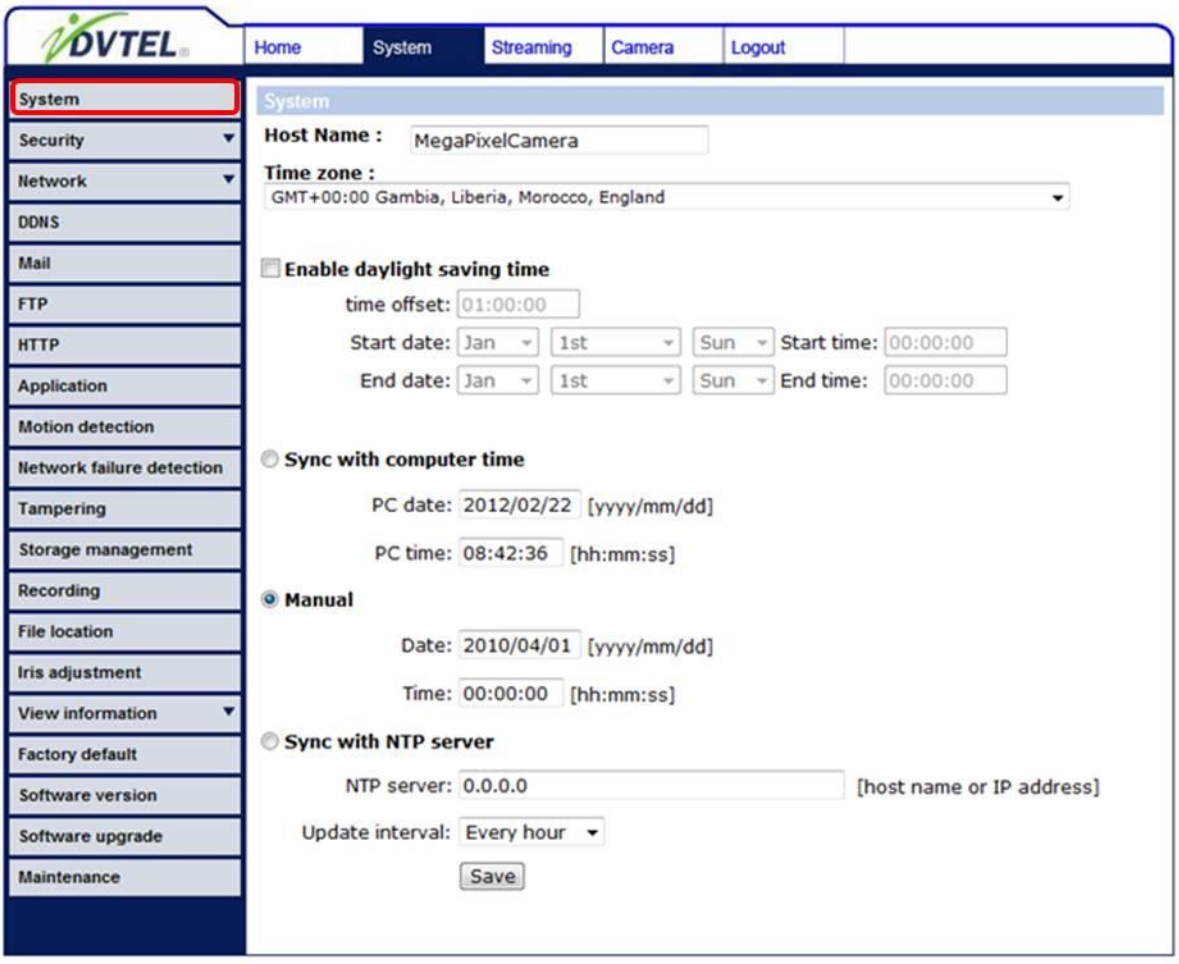


Related Links

- Host Name and System Time Setting
- Security
- Network
- DDNS
- Mail
- FTP
- HTTP
- Application
- Motion Detection
- Network Failure Detection
- Tampering Alarm
- Storage Management
- Recording
- File Location
- Iris Adjustment
- View Information
- Factory Default
- Software Version
- Software Upgrade
- Maintenance

6.3.1 Host Name and System Time Setting

Press the category <**System**> in the sidebar. The page is displayed below.



Host Name

The host name is for camera identification. If the alarm function (see Application) is enabled and is set to send an alarm message by Mail/FTP, the host name entered here is displayed in the alarm message.

Time Zone

Select the time zone you are in from the drop-down menu.

Enable Daylight Saving Time

To enable DST, check the box and then specify time offset and DST duration. The format for time offset is [hh:mm:ss]. For instance, if the amount of time offset is one hour, enter "01:00:00" in the field.

Sync with Computer Time

Select this button to synchronize video date and time display with the PC.

Manual

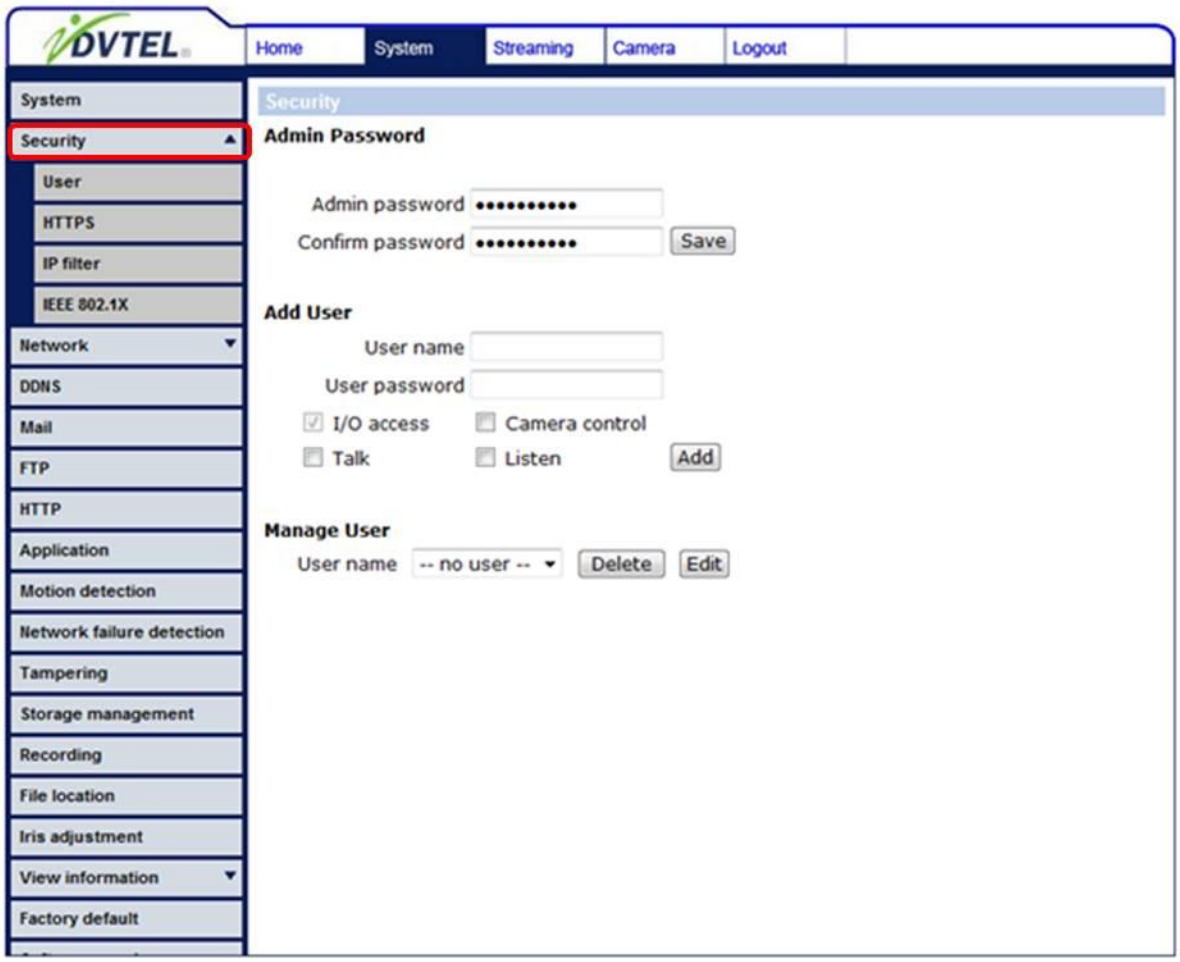
The Administrator can set video date, time and day manually. Entry format should be identical with that shown next to the *Enter* field.

Sync with NTP Server

Network Time Protocol (NTP) is an alternate way to synchronize your camera's clock with an NTP server. Specify the server you wish to synchronize in the *Enter* field. Then select an update interval from the drop-down menu. For further information about NTP, visit www.ntp.org.

6.3.2 Security

Clicking the category <**Security**> in the sidebar opens a drop-down menu with tabs including <**User**>, <**HTTPS**>, <**IP Filter**>, and <**IEEE 802.1X**>.



Related Links

User

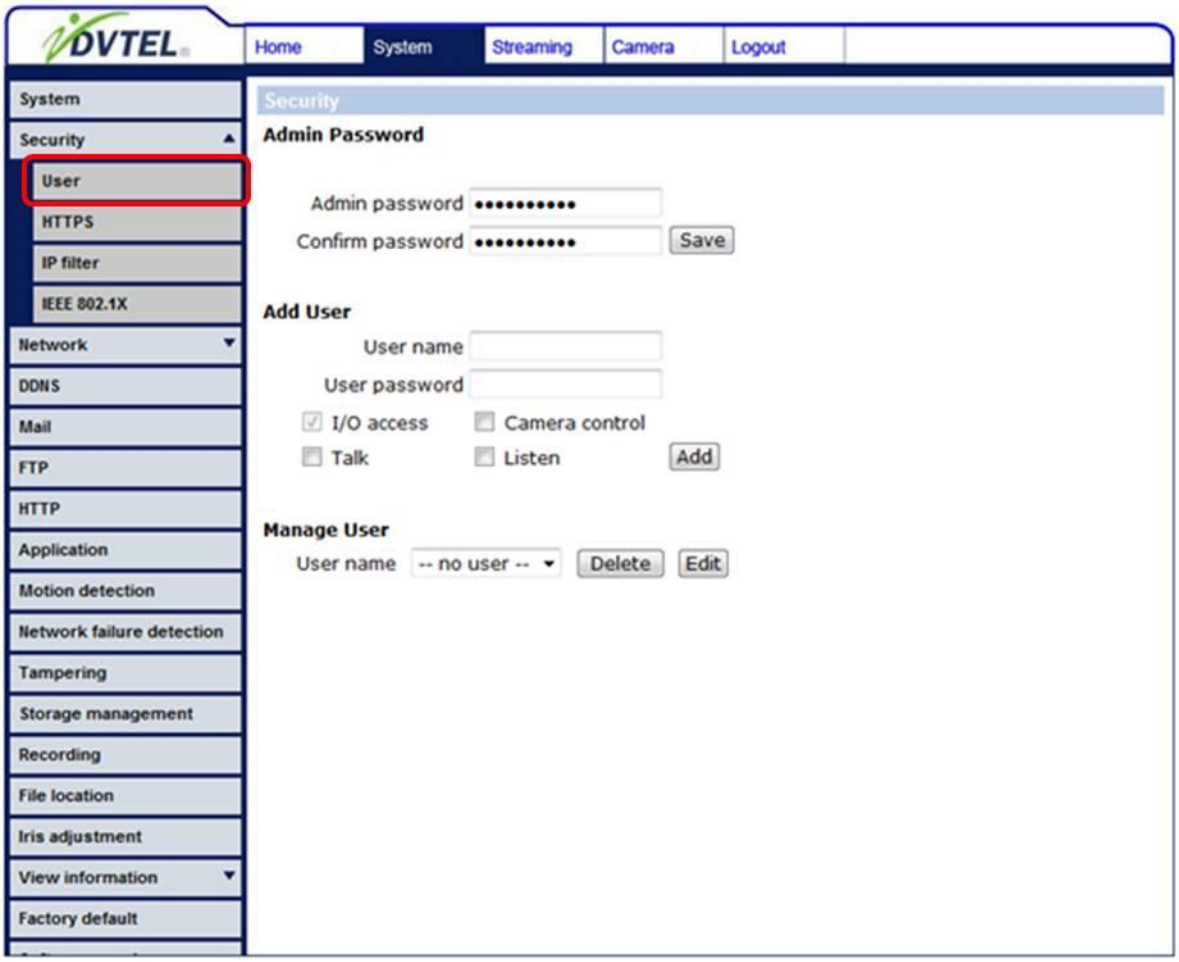
HTTPS

IP Filter

IEEE 802.1X

6.3.2.1 User

Click the <**User**> tab under the category <**Security**> in the sidebar to display the following page.



Root password

Change the administrator's password by inputting the new password in both text boxes. The input characters/numbers are displayed as dots for security purposes. After clicking "**Save**", the web browser asks the Administrator for the new password. The maximum length of the password is 14 digits.

NOTE: The following characters are valid: A-Z, a-z, 0-9,!#$%&'-.@^_~.

Add user

Type the new user's user name and password in the respective fields. Click "**Add**" to add the new user. Both user name and password can be up to 16 characters. The new user name is displayed in the user name list. There is a maximum of 20 user accounts. Each user can be assigned the privileges of "**Camera control**", "**Talk**" and "**Listen**".

I/O access

This box supports fundamental functions that enable users to view video when accessing the camera.

Camera control

This box allows the specified user to change camera parameters on the Camera Setting page.

Talk/Listen

Talk and Listen functions allow the user in the local site (PC site) to communicate with the administrator in the remote site, for instance.

Add

Click on Add to accept your changes.

Manage User

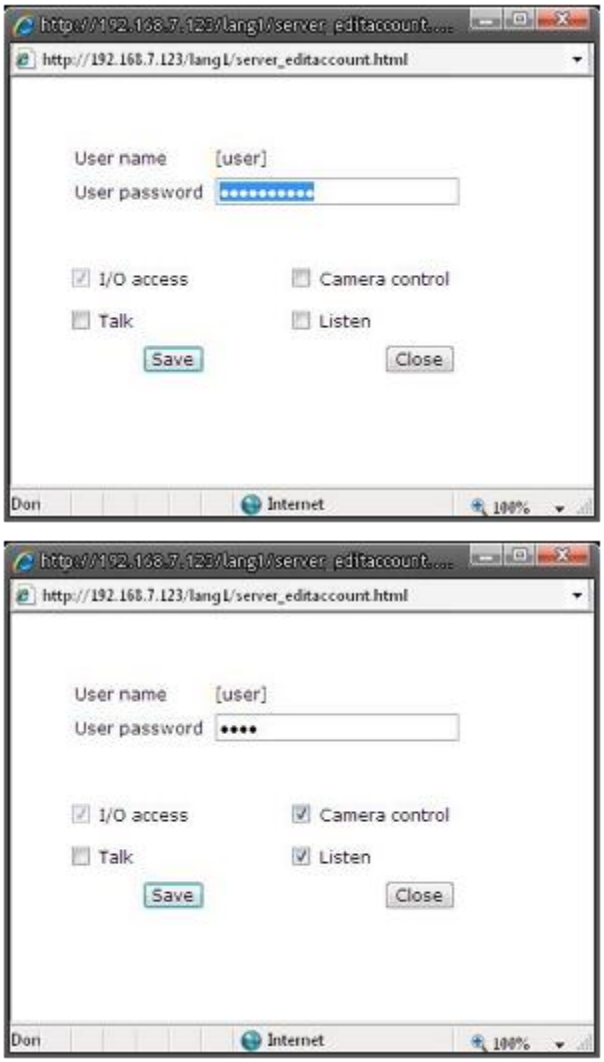
Delete

To delete a user, pull down the user list and select the user name you wish to delete. Then click "**Delete**" to remove it.

Edit

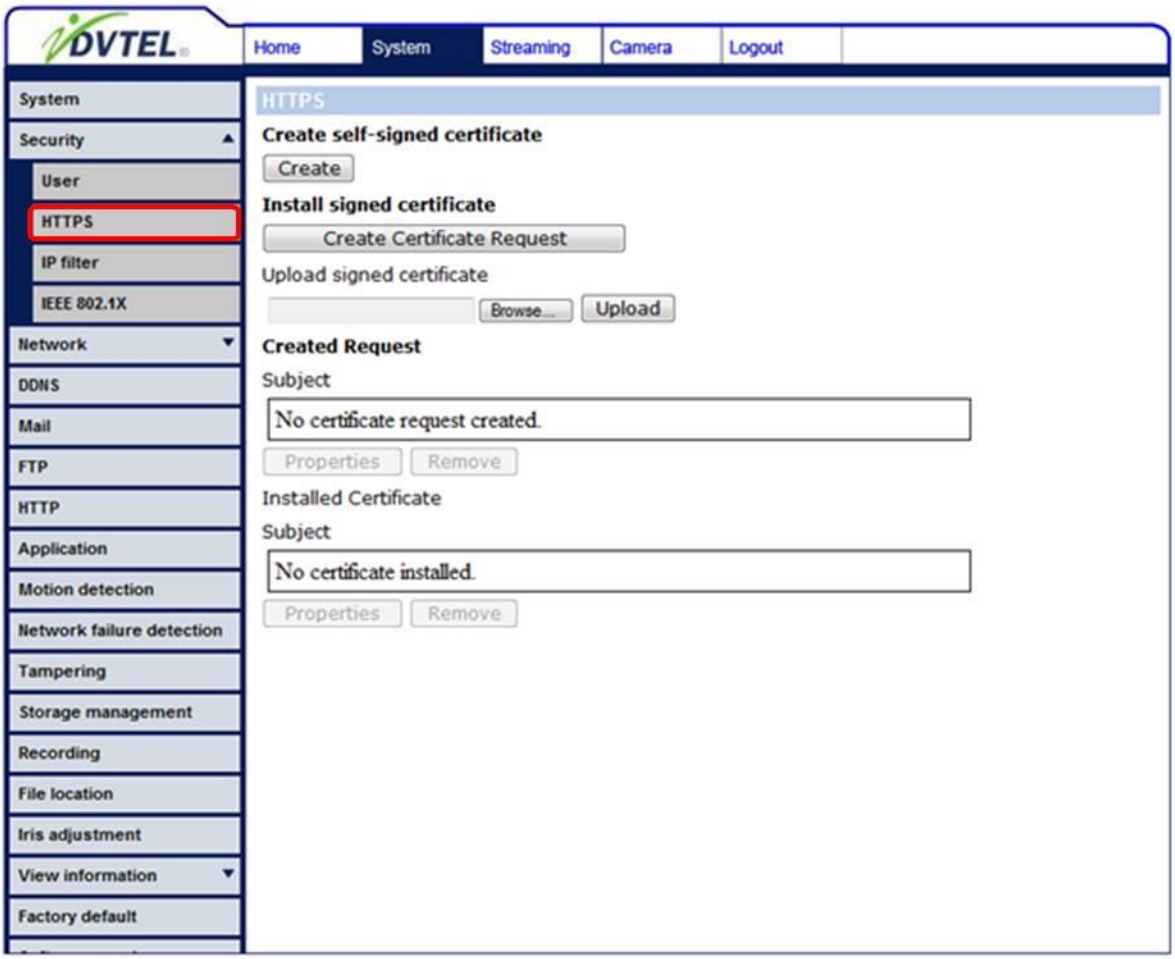
Pull down the user list and select a user name. Click "**Edit**" to edit the user's password and privileges.

NOTE: You must enter the user password as well as select the function available to the user. When finished, click "**Save**" to modify the account authority.



6.3.2.2 HTTPS

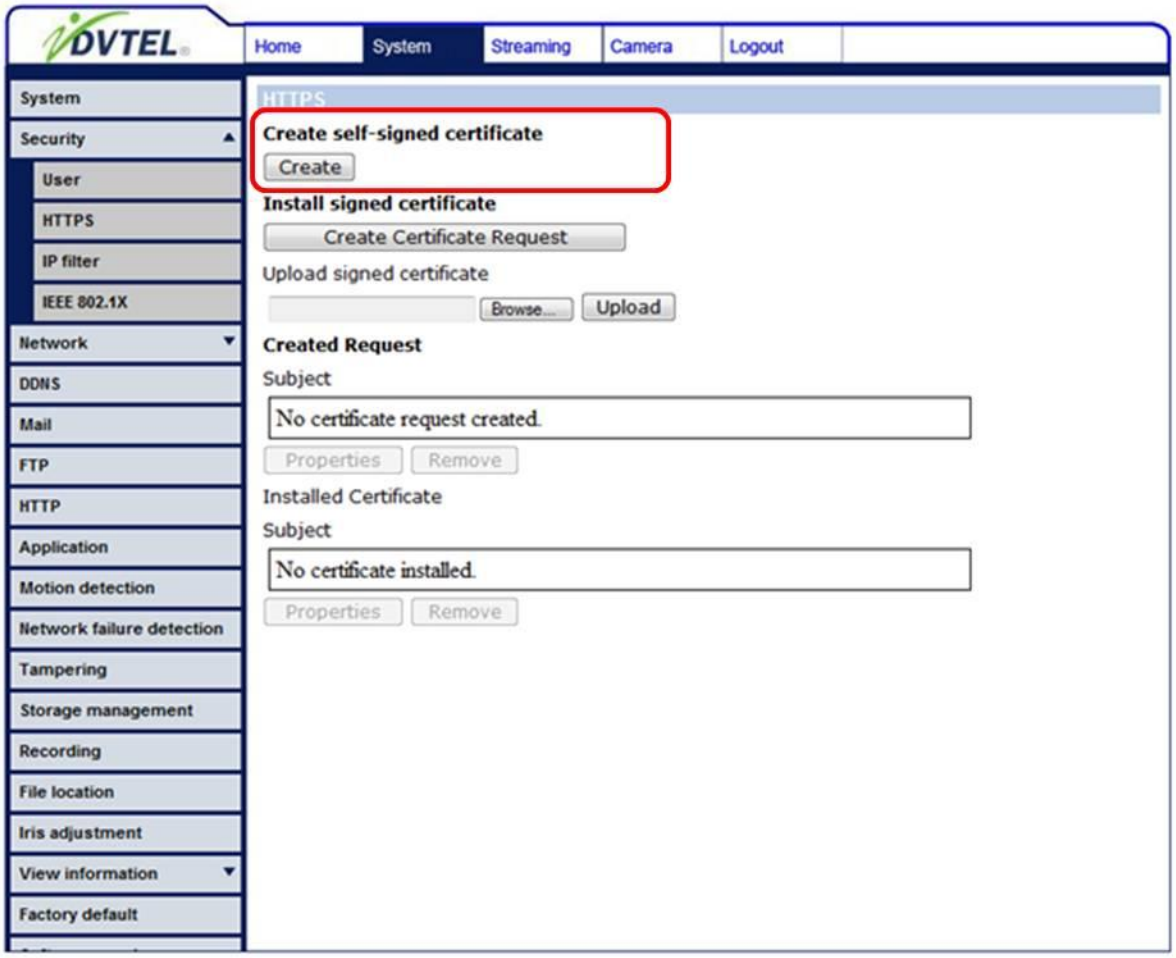
<**HTTPS**> allows secure connections between the camera and web browser using <**Secure Socket Layer (SSL)**> or <**Transport Layer Security (TLS)**>, which protect camera settings or Username/Password info from snooping. It is necessary to install a self-signed certificate or a CA-signed certificate for implementing <**HTTPS**>. Click the <**HTTPS**> tab. The HTTPS setting page appears.



To use HTTPS on the camera, an HTTPS certificate must be installed. The HTTPS certificate can be obtained either by creating and sending a certificate request to a Certificate Authority (CA) or by creating a self-signed HTTPS certificate, as described below.

Create a Self-signed Certificate

Before a CA-issued certificate is obtained, users can first create and install a self-signed certificate.

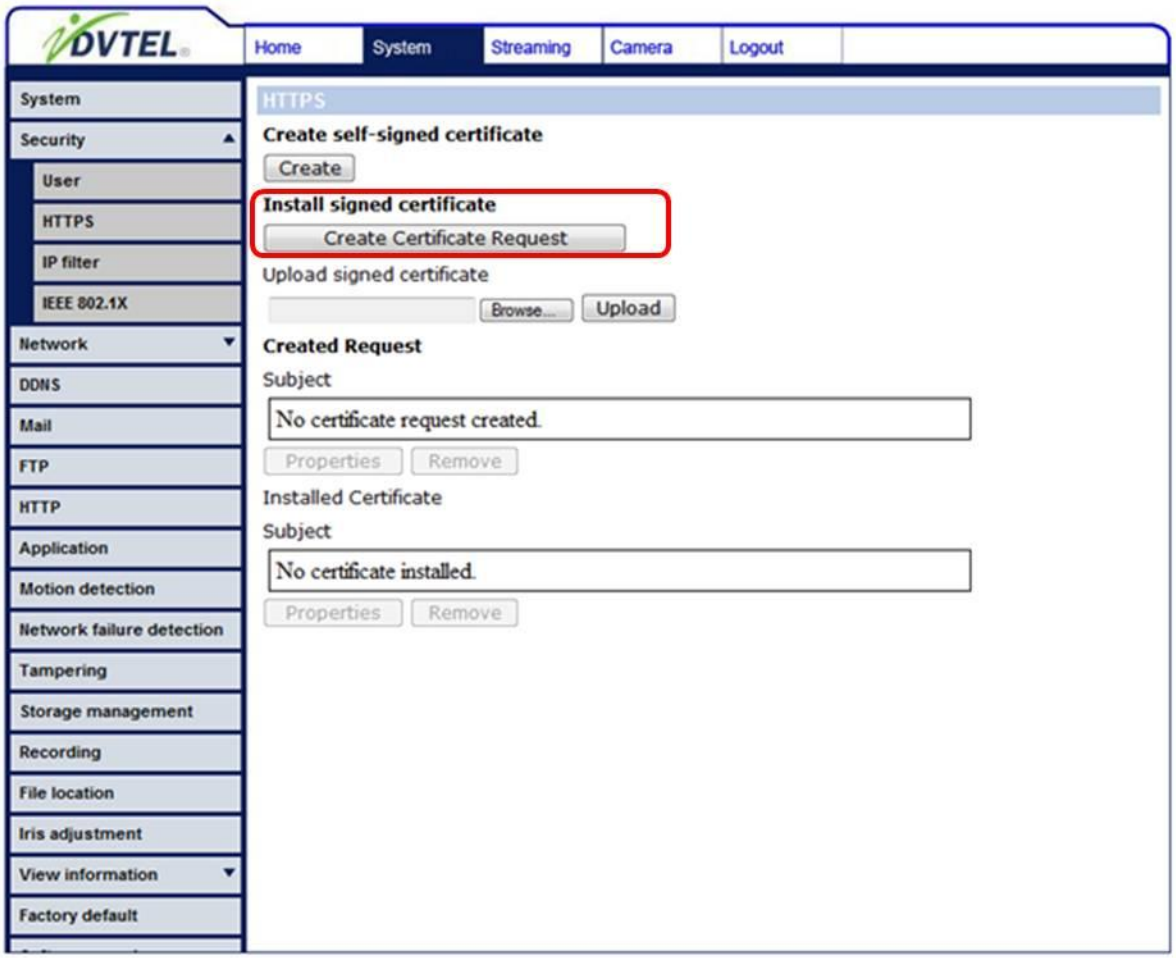


Click the "**Create**" button under "**Create self-signed certificate**" and provide the requested information to install a self-signed certificate for the camera. Refer to "Provide the Certificate Information" in this section for details.

NOTE: The self-signed certificate does not provide the same high level of security as a CA-issued certificate.

Create Certificate Request

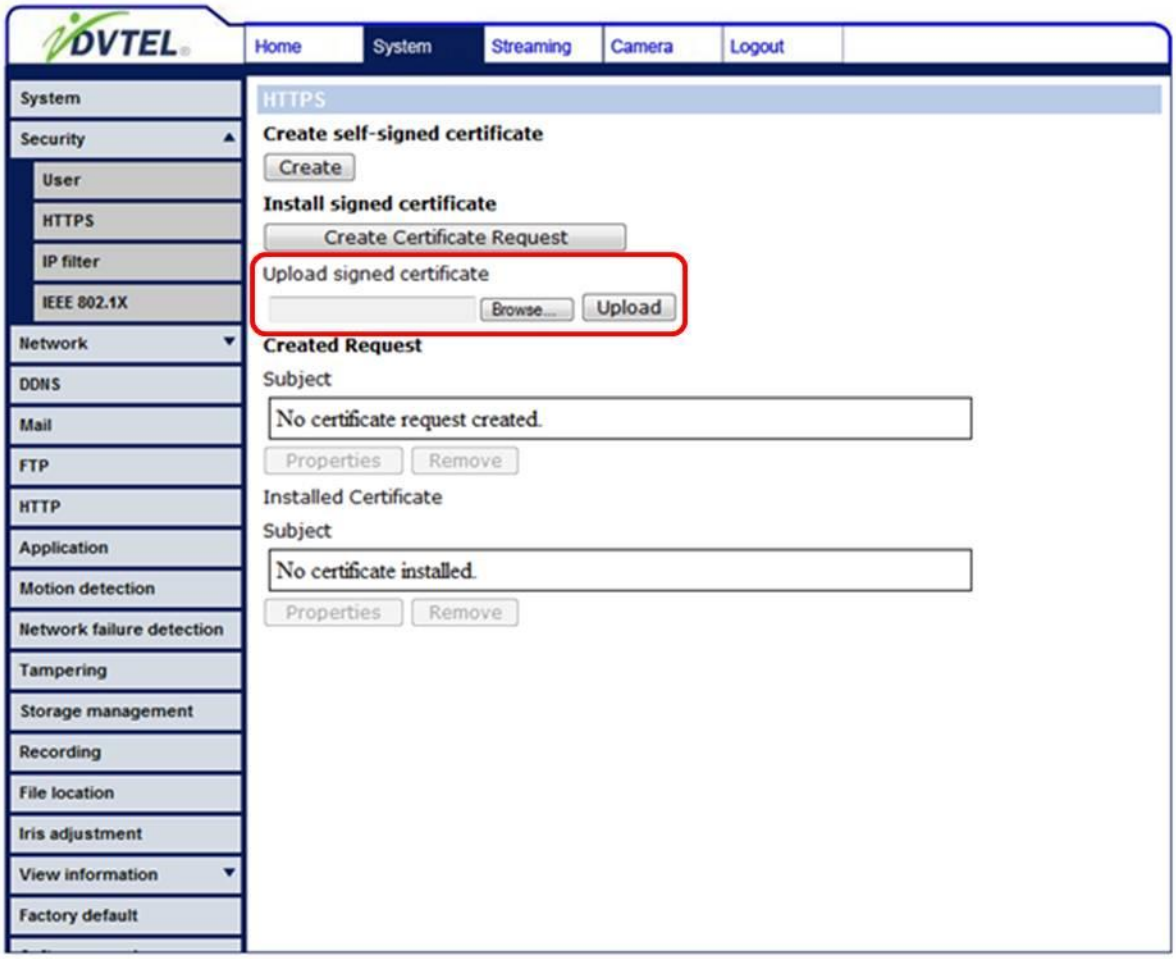
Click the "**Create Certificate Request**" button to create and submit a certificate request in order to obtain a signed certificate from a CA.



Provide the requested information in the "**Created Request**" field. Refer to "Provide the Certificate Information" in this section for details.

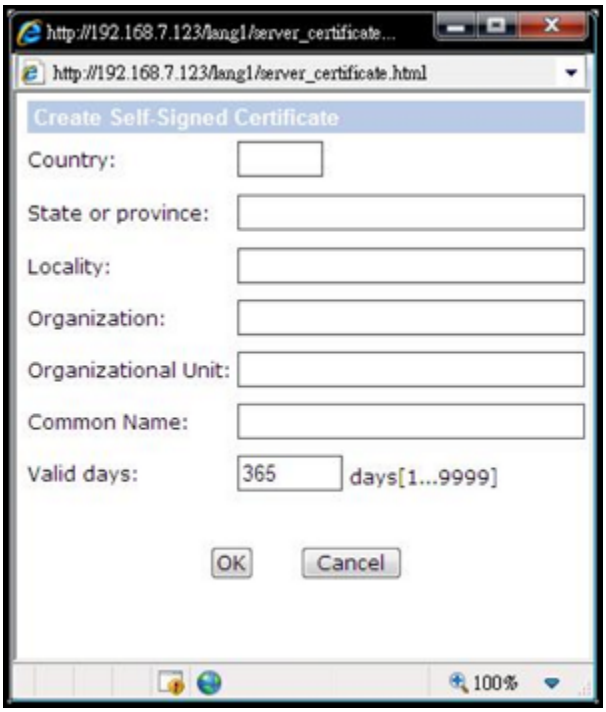
When the request is complete, the subject of the Created Request is shown in the field. Click "**Properties**" below the "**Subject**" field, copy the PEM-formatted request, and send it to your CA.

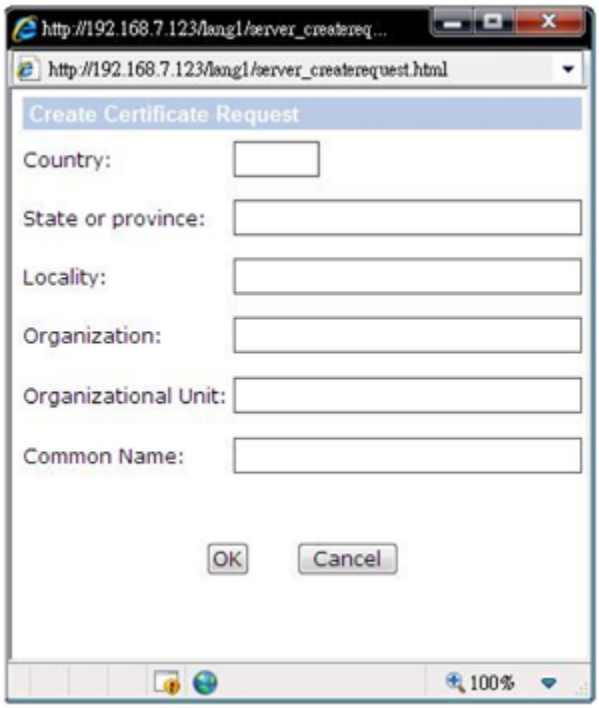
When the signed certificate is returned, install it by uploading the signed certificate, as seen in the following screen.



Provide the Certificate Information

To create a self-signed HTTPS Certificate or a Certificate Request to CA, enter the information as requested:





Country

Enter a two-letter combination code to indicate the country the certificate will be used in. For instance, type in "US" to indicate United States.

State or province

Enter the local administrative region.

Locality

Enter other geographical information.

Organization

Enter the name of the organization to which the entity identified in "Common Name" belongs.

Organizational Unit

Enter the name of the organizational unit to which the entity identified in the "**Common Name**" field belongs.

Common Name

Indicate the name of the person or other entity that the certificate identifies (often used to identify the website).

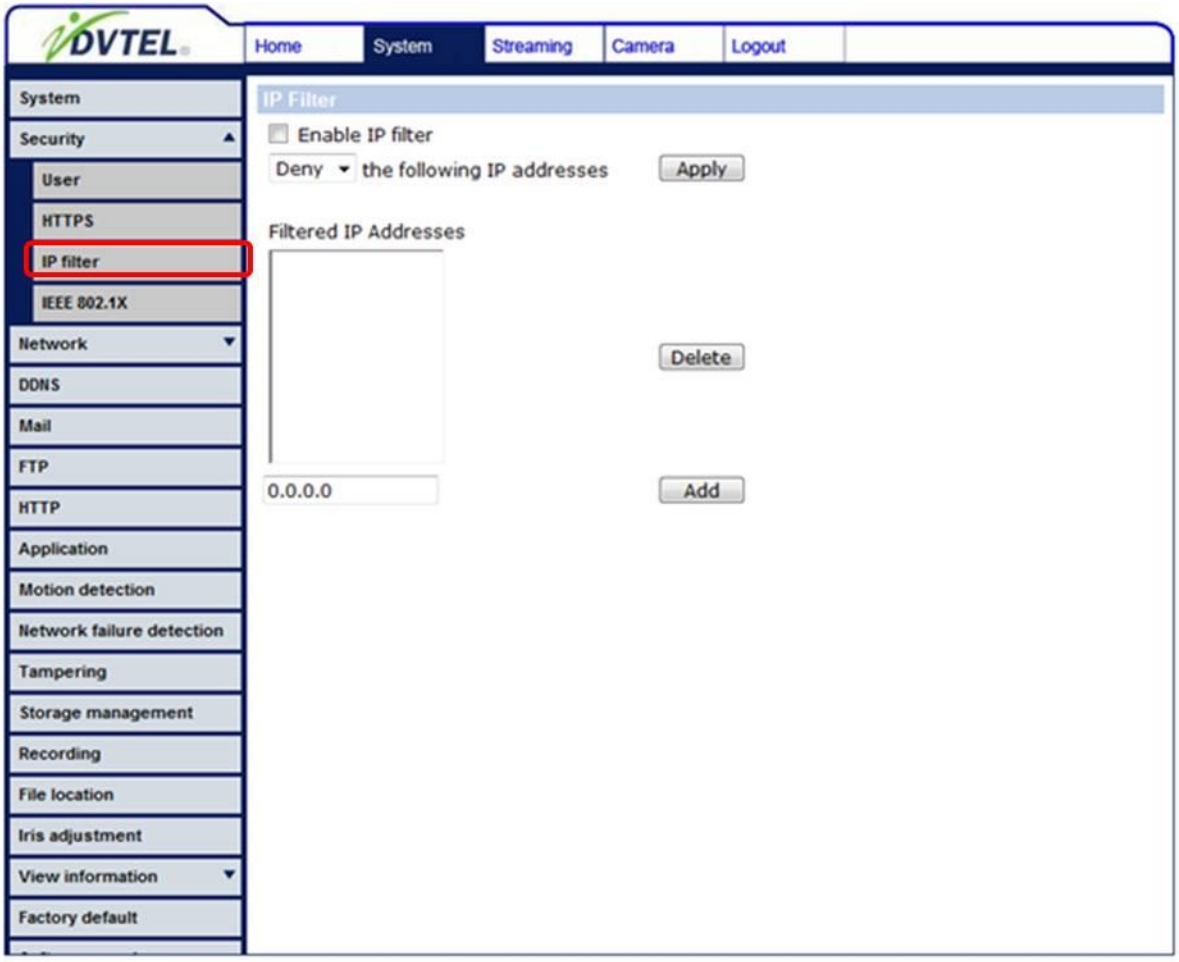
Valid days (self-signed certificate only)

Enter the period in days (1~9999) to indicate the valid period of certificate.

Click "**OK**" to save the Certificate Information after completion.

6.3.2.3 IP Filter

The IP filter restricts access to the camera by denying/allowing specific IP addresses.



General

Enable IP Filter

Check the box to enable the IP Filter function. Once enabled, the listed IP addresses (IPv4) are allowed/denied access to the camera.

Select "**Allow**" or "**Deny**" from the drop-down list and click the "**Apply**" button to determine the IP Filter behavior.

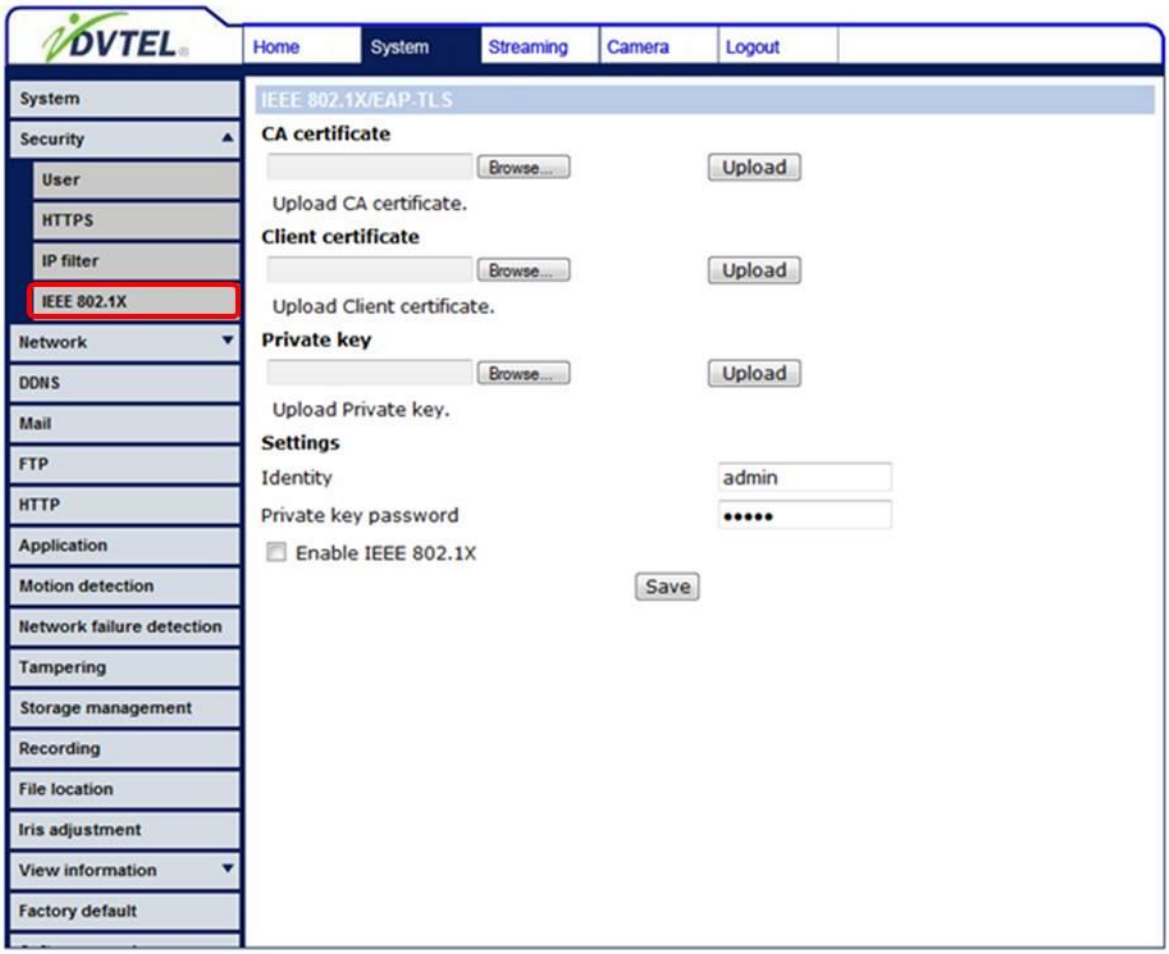
Add/Delete IP Address

Input the IP address and click the "**Add**" button to add a new filtered address. The Filtered IP Addresses box shows the currently configured IP addresses. Up to 256 IP address entries

may be specified. To remove an IP address from the list, select the IP address and then click the "**Delete**" button.

6.3.2.4 IEEE 802.1X

The camera is allowed to access a network protected by 802.1X/EAPOL (Extensible Authentication Protocol over LAN). Users must contact the network administrator to obtain certificates, user IDs, and passwords.



CA Certificate

The CA certificate is created by the Certificate Authority for the purpose of validating itself. Upload the certificate to check the server's identity.

Client Certificate/Private Key

Upload the Client Certificate and Private Key to authenticate the camera.

Settings

Identity

Enter the user identity associated with the certificate. Up to 16 characters can be used.

Private Key Password

Enter the password (maximum 16 characters) for your user identity.

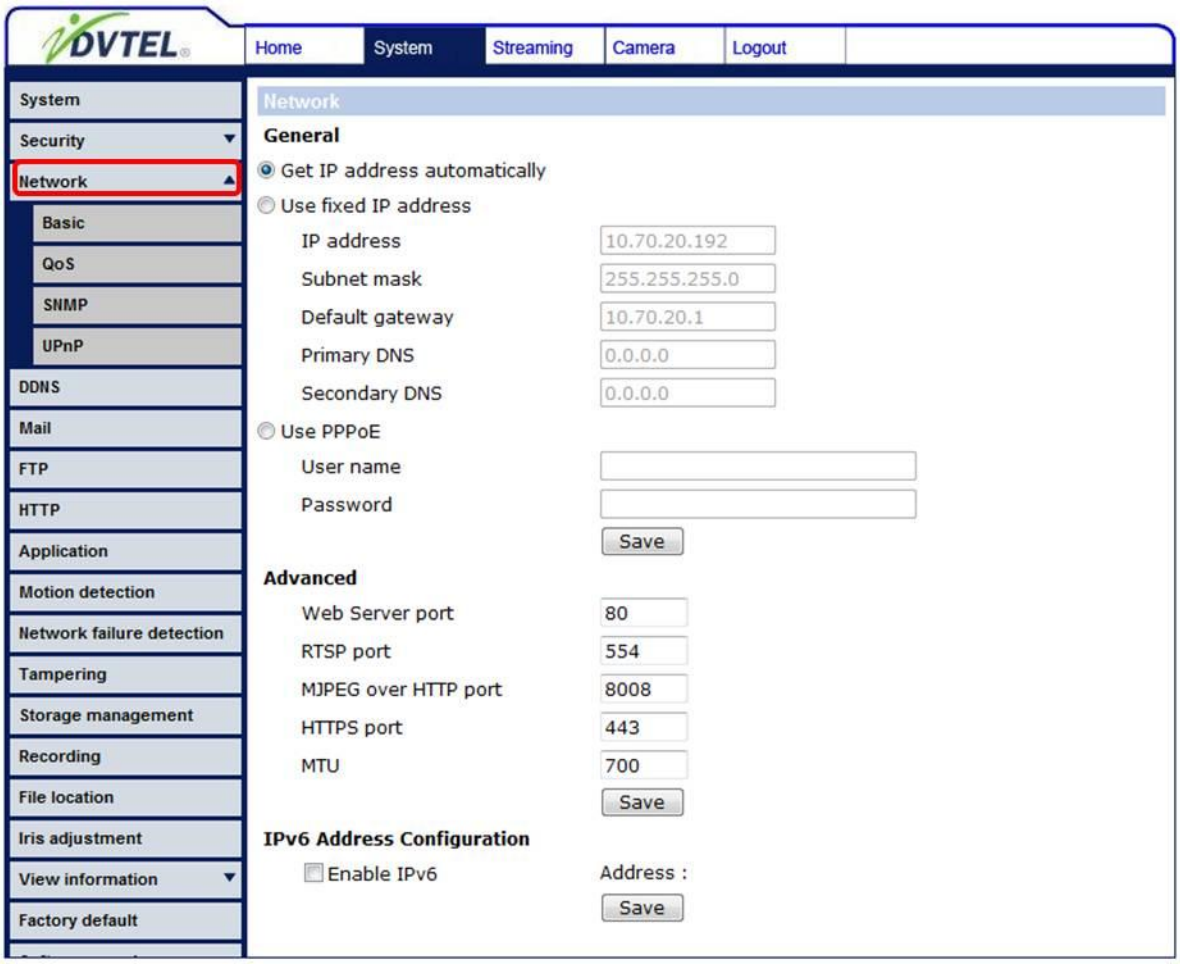
Enable IEEE 802.1X

Check the box to enable IEEE 802.1X.

Click "**Save**" to save the IEEE 802.1X/EAP TLS setting.

6.3.3 Network

Click the category <**Network**>. A drop-down menu appears with tabs including <**Basic**>, <**QoS**>, <**SNMP**>, and <**UPnP**>.



Related Links

Basic

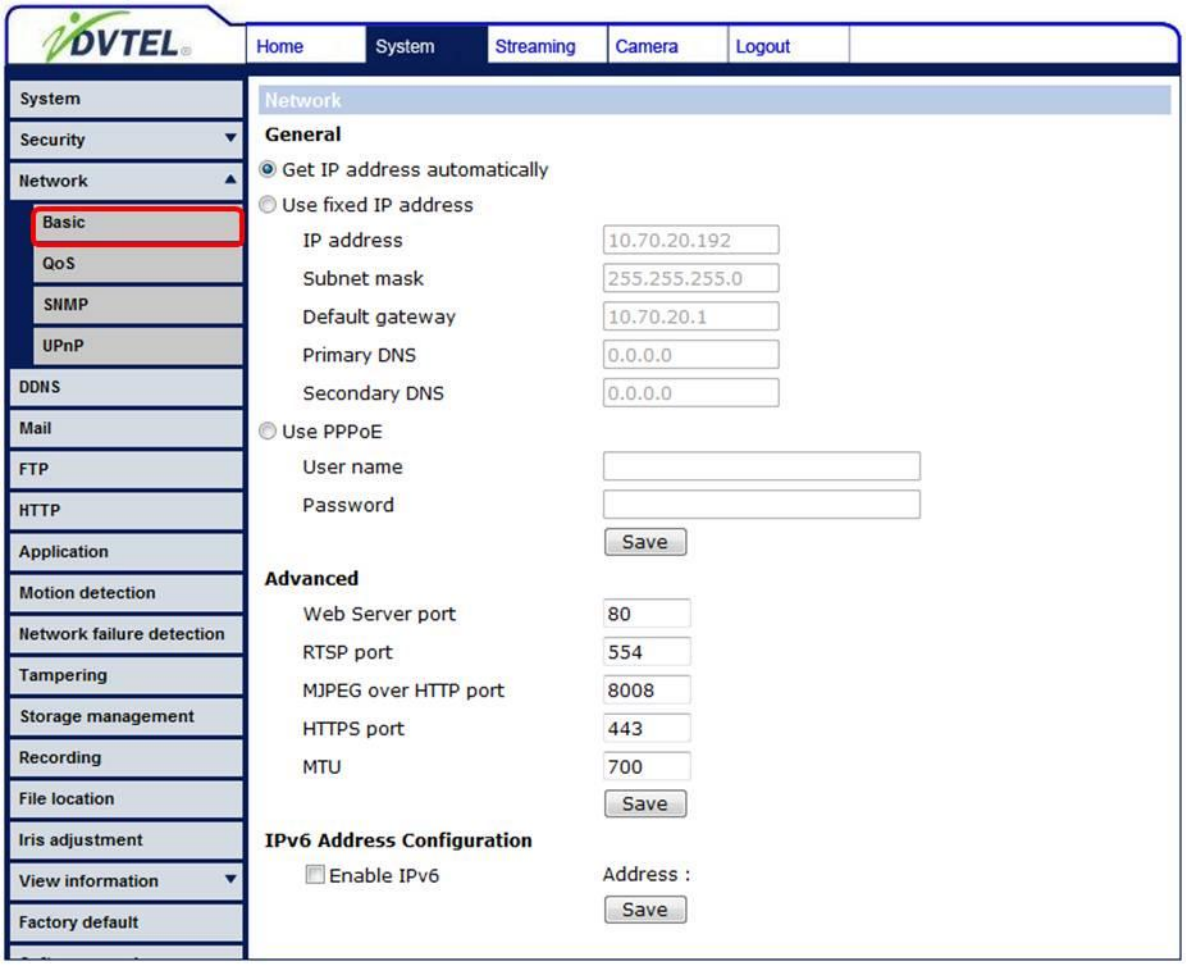
QoS (Quality of Service)

SNMP (Simple Network Management Protocol)

UPnP

6.3.3.1 Basic

Users can connect to the camera with either fixed or dynamic (DHCP) IP address. The camera also provides PPPoE (Point-to-Point Protocol over Ethernet) support for users who connect to the network via PPPoE.



General

Get IP address automatically (DHCP)

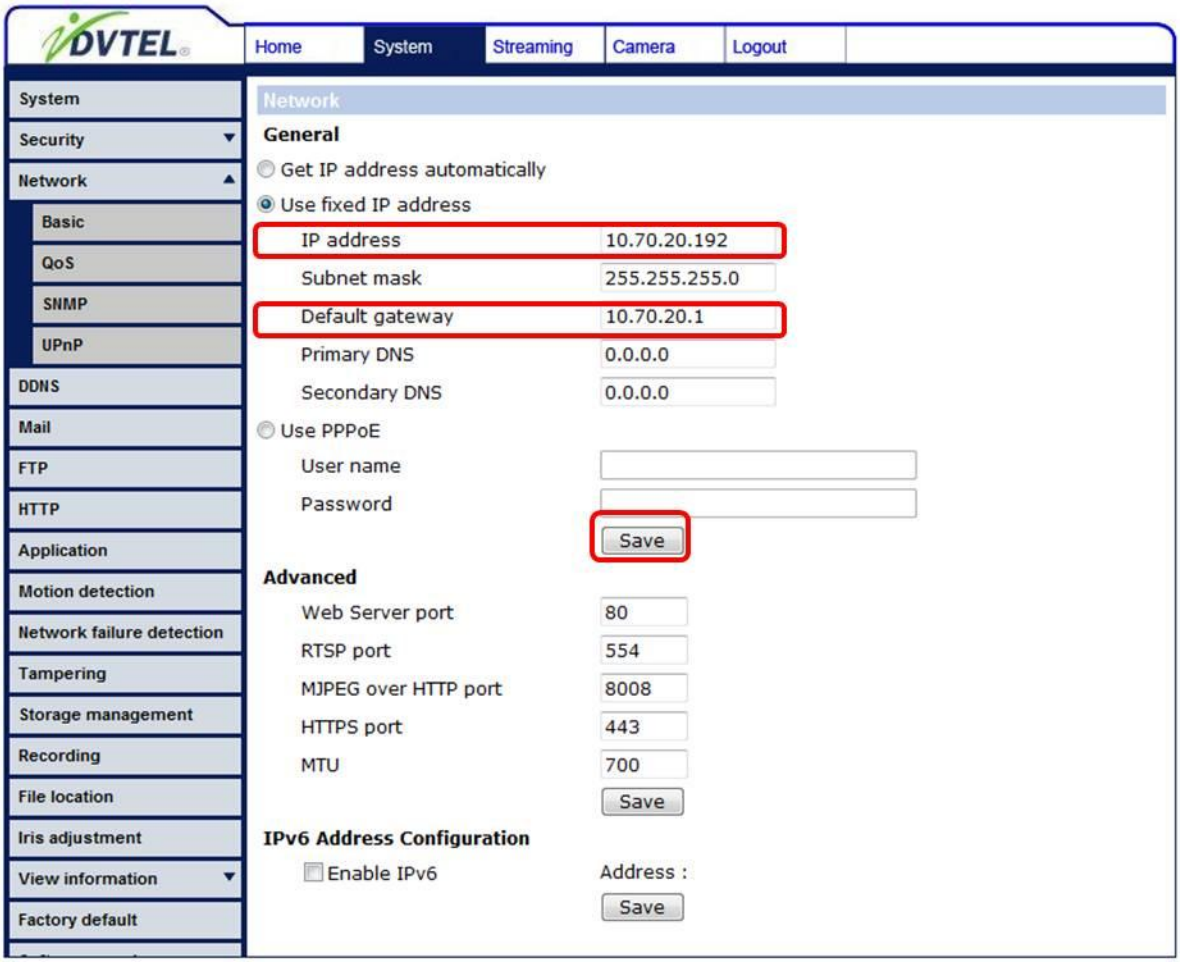
The camera's default setting is "**Use fixed IP address**". Refer to Accessing Camera for login with the default IP address.

If "**Get IP address automatically**" is selected, after the camera restarts, users can search through the installer program DeviceSearch.exe, which is found in the "DeviceSearch" folder in the supplied CD.

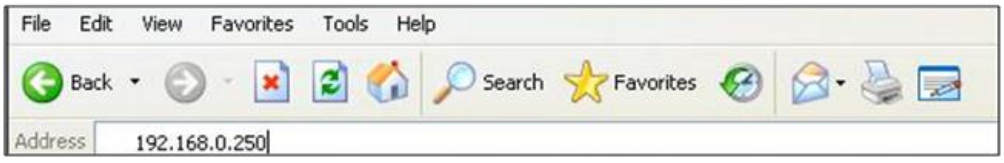
NOTE: For future identification, record the camera's MAC address, which is found on the camera label.

Use fixed IP address

To setup static IP address, select "**Use fixed IP address**" and move the cursor to the IP address blank (as indicated below) and insert the new IP address, ex. 192.168.7.123. Then go to the Default gateway field (explained later) and change the setting, for example 192.168.7.254. Press "**Save**" to confirm the new settings.



Users can login to the camera with a static IP address by using the "DeviceSearch" software (see Accessing Camera) or entering the IP address in the URL bar and pressing "**Enter**".



- **IP address**
  The IP address is necessary for network identification.
- **Subnet mask**
  The subnet mask is used to determine if the destination is in the same subnet. The default value is "255.255.255.0".
- **Default gateway**
  The default gateway is the gateway used to forward frames to destinations in a different subnet. An invalid gateway setting causes transmission to destinations in other subnets to fail.
- **Primary DNS**
  The primary DNS is the primary domain name server that translates hostnames into IP addresses.
- **Secondary DNS**
  The secondary DNS is a secondary domain name server that backs up the primary DNS.
- **Use PPPoE**
  PPPoE users should enter their PPPoE Username and Password into the respective fields. Click on the "**Save**" button to save the settings.

Advanced

- **Web server port**
  The default web server port is 80. Once the port is changed, the user must be notified the change for the connection to be successful. For instance, when the Administrator changes the HTTP port of the camera whose IP address is 192.168.0.100 from 80 to 8080, the user must type in the web browser "http://192.168.0.100:8080" instead of "http://192.168.0.100".
- **RTSP port**
  The default setting of the RTSP Port is 554. The range is between 1024 to 65535.
- **MJPEG over HTTP port**
  The default setting of MJPEG over HTTP Port is 8008. The range is between 1024 to 65535. Note that MJPEG is not supported by Latitude.
- **HTTPS port**
  The default setting of HTTPS Port is 443. The range is between 1024 to 65535.

NOTE: Be sure to assign a different port number for each separate service mentioned above.

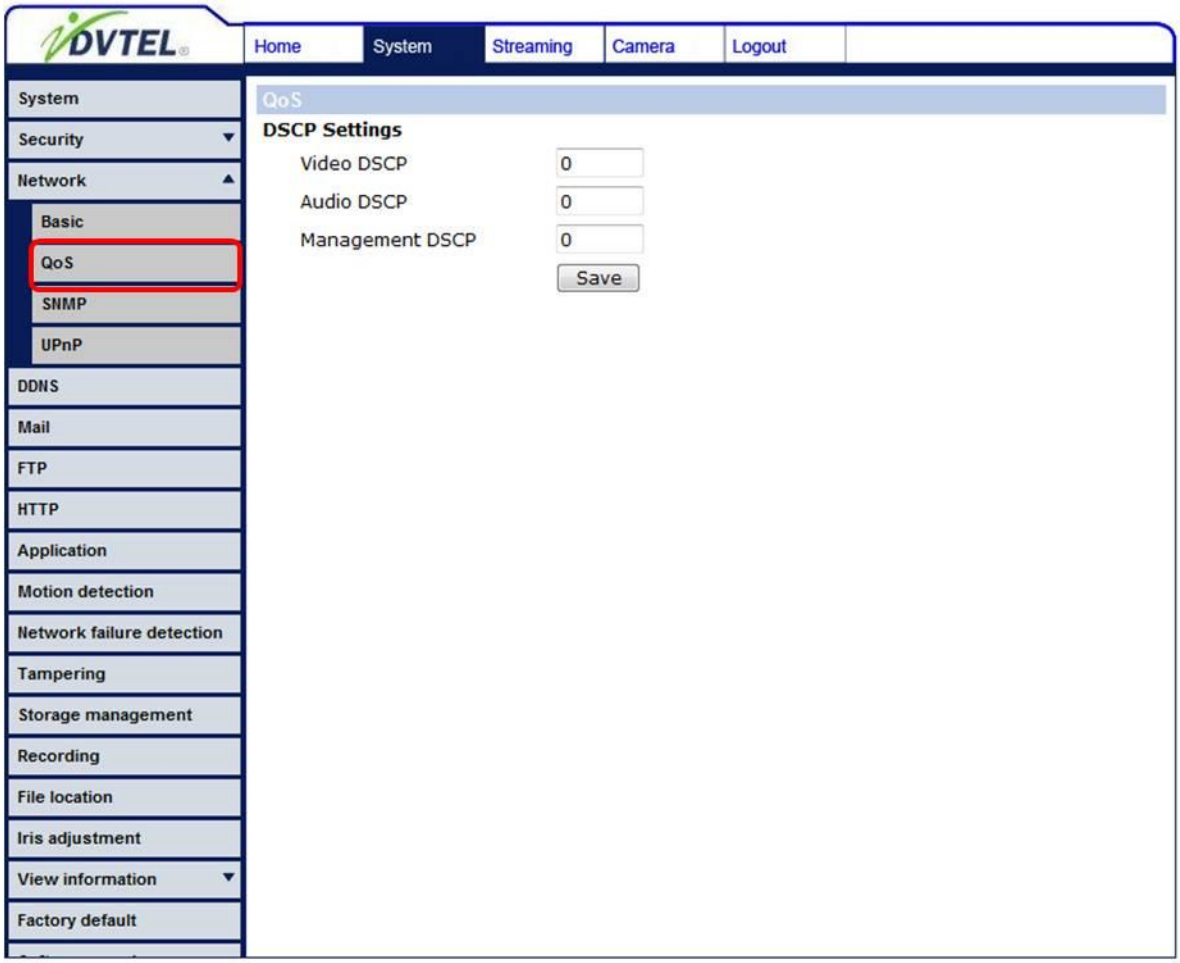
- **MTU**
  The default MTU (Maximum Transmission Unit) is the greatest amount of data that can be transferred in one physical frame on the network. For Ethernet, the MTU is 1500 bytes. For PPPoE, the MTU is 1492.

Click "**Save**" to save the settings.**IPv6 Address Configuration**

With IPv6 support, users can use the corresponding IPv6 address for browsing. Enable IPv6 by checking the box. Click "**Save**" to save the setting.

6.3.3.2 QoS

Quality of Service (QoS) provides differentiated service levels for different types of traffic packets and guarantees delivery of priority services during periods of network congestion. Adapting the Differentiated Services (DiffServ) model, traffic flows are classified and marked with DSCP (DiffServ Codepoint) values, and thus receive the corresponding forwarding treatment from DiffServ-capable routers.



DSCP Settings

The DSCP value range is from 0 to 63. The default DSCP value is 0 (DSCP disabled).

The camera uses the following QoS classes: Video, Audio, and Management.

- **Video**
  This class consists of applications such as MJPEG over HTTP, RTP/RTSP and RTSP/HTTP. Note that MJPEG is not supported by Latitude.

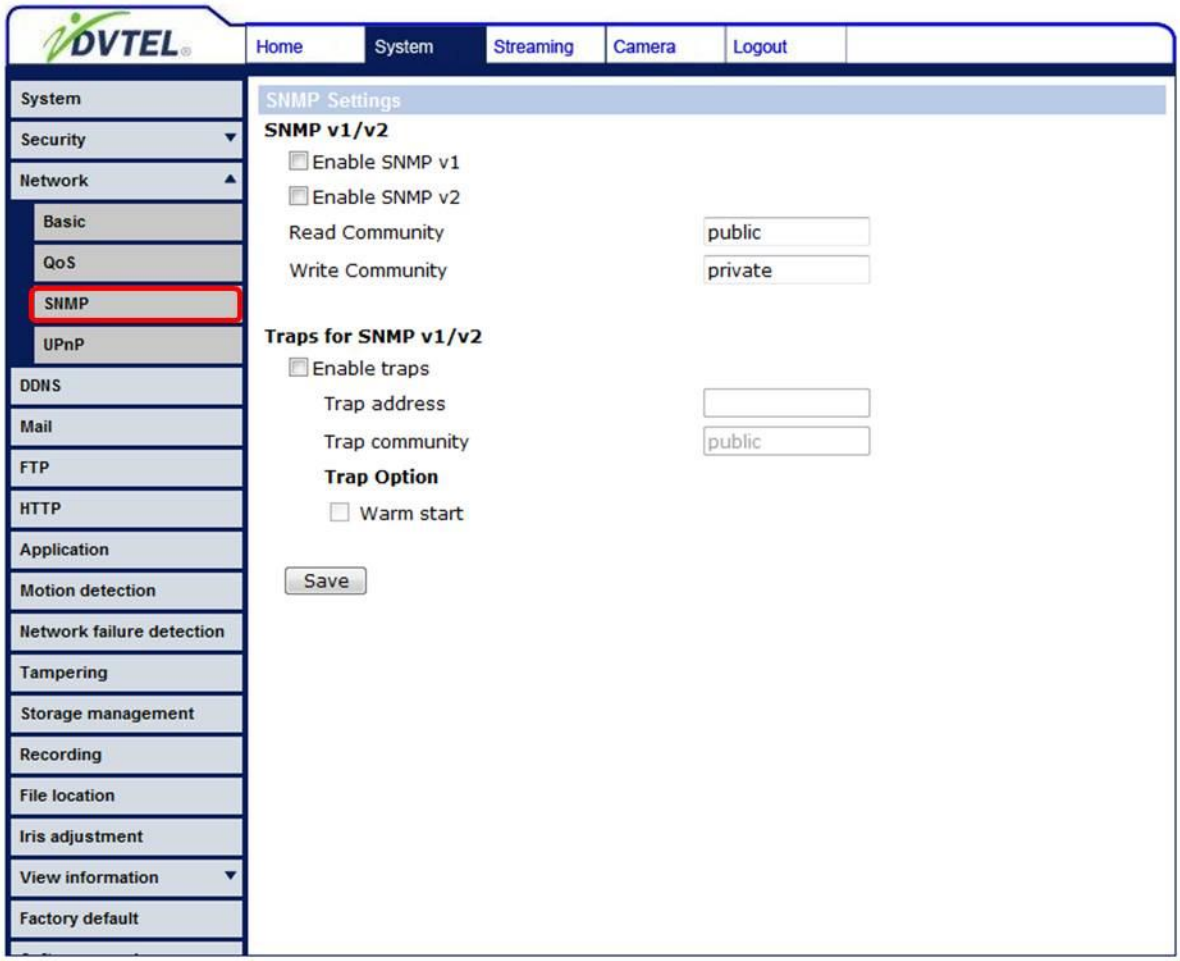
- **Audio**
  This setting is only available for cameras that support audio.
- **Management**
  this class consists of HTTP traffic (web browsing).

Click the "**Save**" button when complete.

NOTE: To enable this function, make sure the switches/routers in the network support QoS.

6.3.3.3 SNMP Settings

Simple Network Management Protocol (SNMP) enables the camera to be monitored and managed remotely by the network management system.



SNMP v1/v2

- **Enable SNMP**
  Select the version of SNMP (v1 or v2) to use by checking the box.
- **Read Community**
  Specify the community name that has read-only access to all supported SNMP objects. The default value is "public".
- **Write Community**
  Specify the community name that has read/write access to all supported SNMP objects (except read-only objects). The default value is "write".

Traps for SNMP v1/v2

Traps are used by the camera to send messages to a management system for important events or status changes.

- **Enable traps**
  Check this box to activate trap reporting.
- **Trap address**
  Enter the IP address of the management server.
- **Trap community**
  Enter the community to use when sending a trap message to the management system.

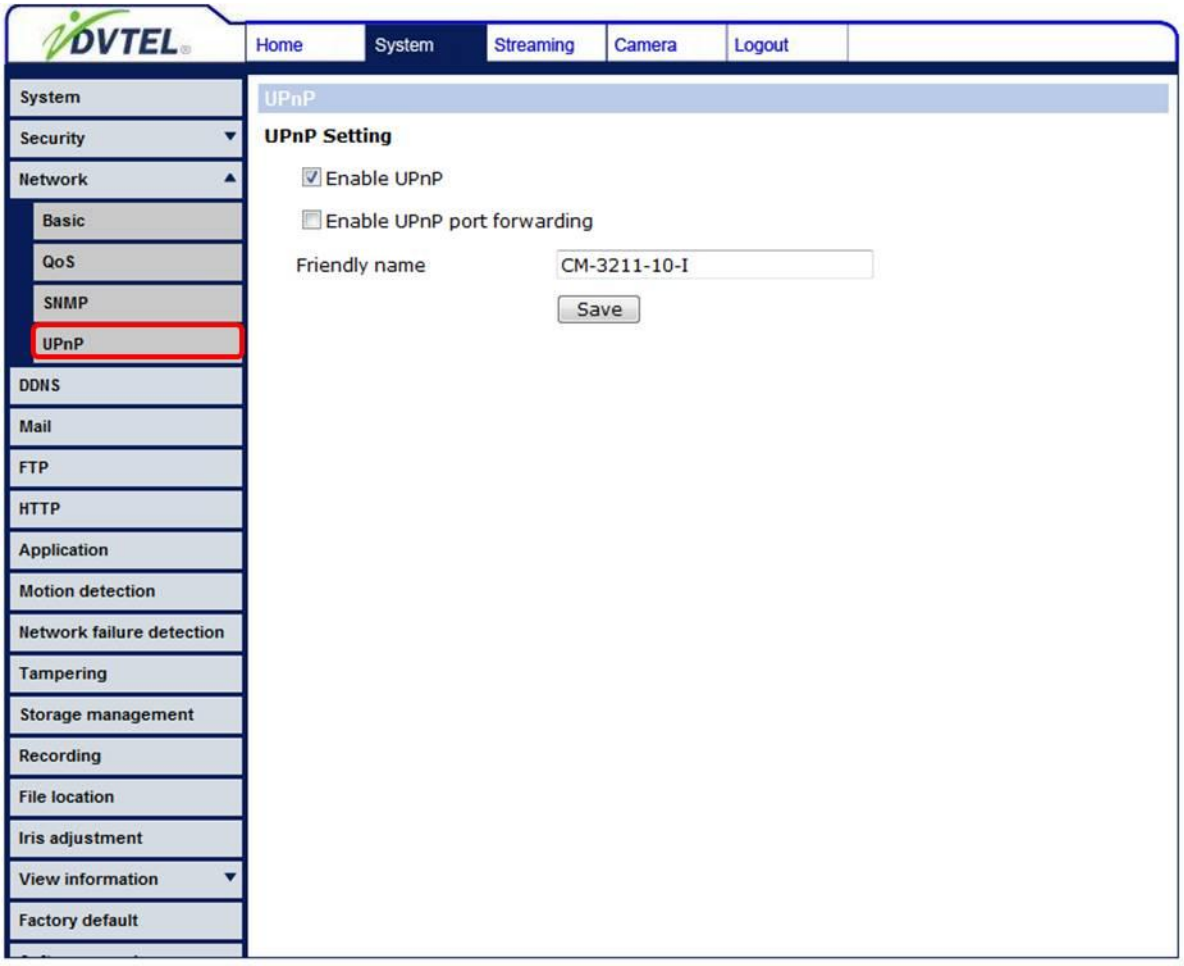
Trap option

- **Warm start**
  A warm start SNMP trap signifies that the SNMP device, such as the camera, performs software reload.

Click the "**Save**" button when complete.

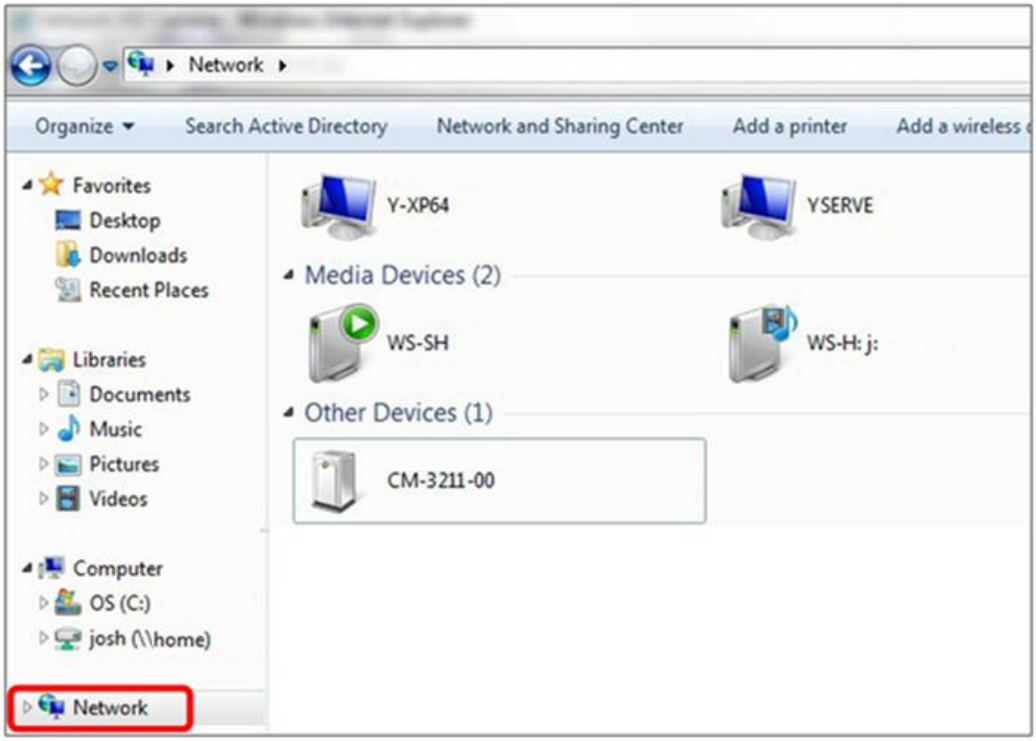
6.3.3.4 UPnP

The UPnP Setting page enables you to use Universal Plug-and-Play protocols for networking your devices.



UPnP Setting

- **Enable UPnP**
  When UPnP is enabled, whenever a camera is discovered on the LAN, the icon of the connected camera appears in My Network Places and allows direct access as shown below.



NOTE: To enable this function, make sure the UPnP component is installed on your computer. Refer to Enable UPnP discovery for the Windows 7 procedure.

- **Enable UPnP port forwarding**
  When UPnP port forwarding is enabled, the camera is allowed to open the web server port on the router automatically.

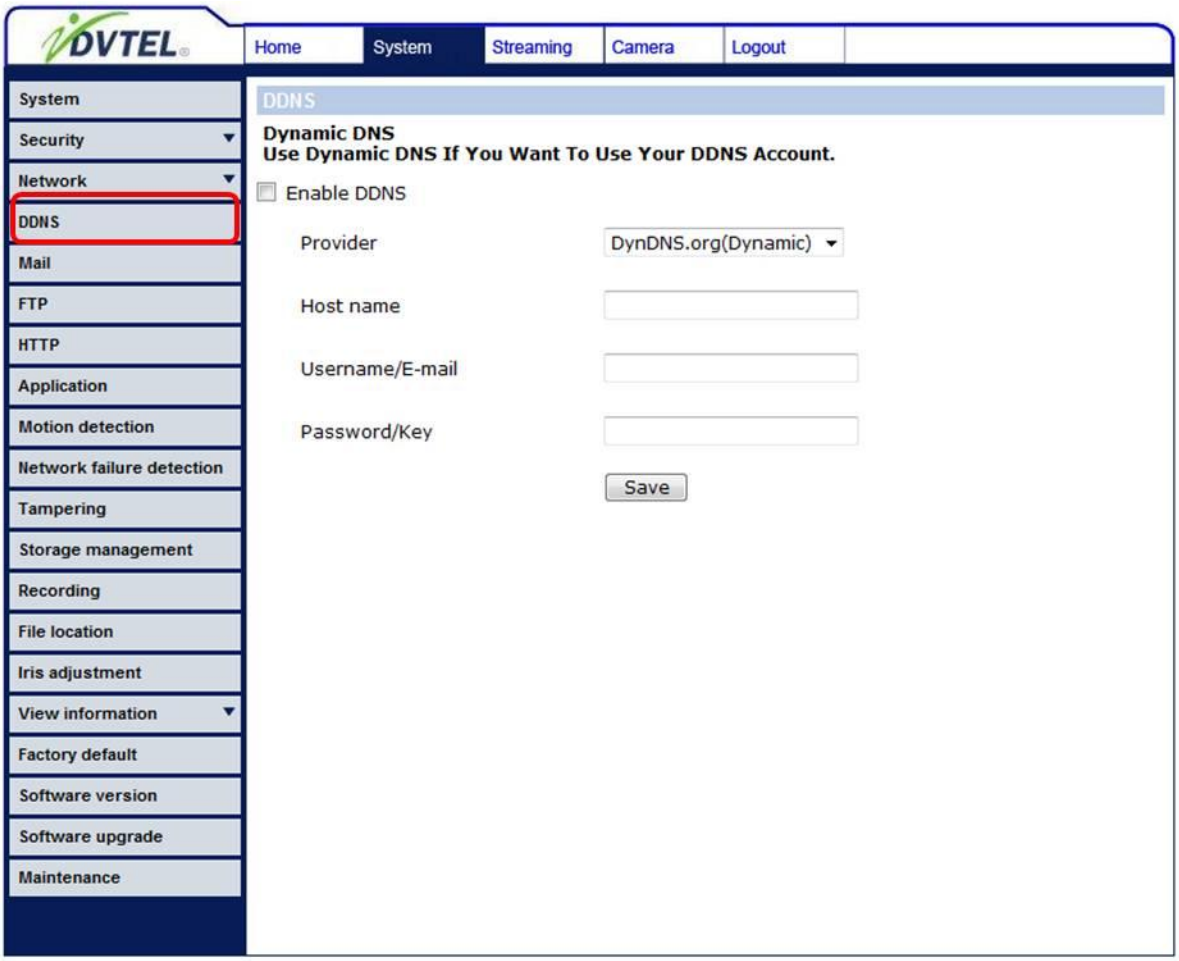
NOTE: To enable this function, make sure that your router supports UPnP and that it is activated.

- **Friendly name**
  Set the name for the camera for identification.

Click "**Save**" to save the settings.

6.3.4 DDNS

Dynamic Domain Name System (DDNS) allows a host name to be constantly synchronized with a dynamic IP address. This permits those using a dynamic IP address to be accessed by a static domain name.



Enable DDNS

Check this box to enable DDNS.

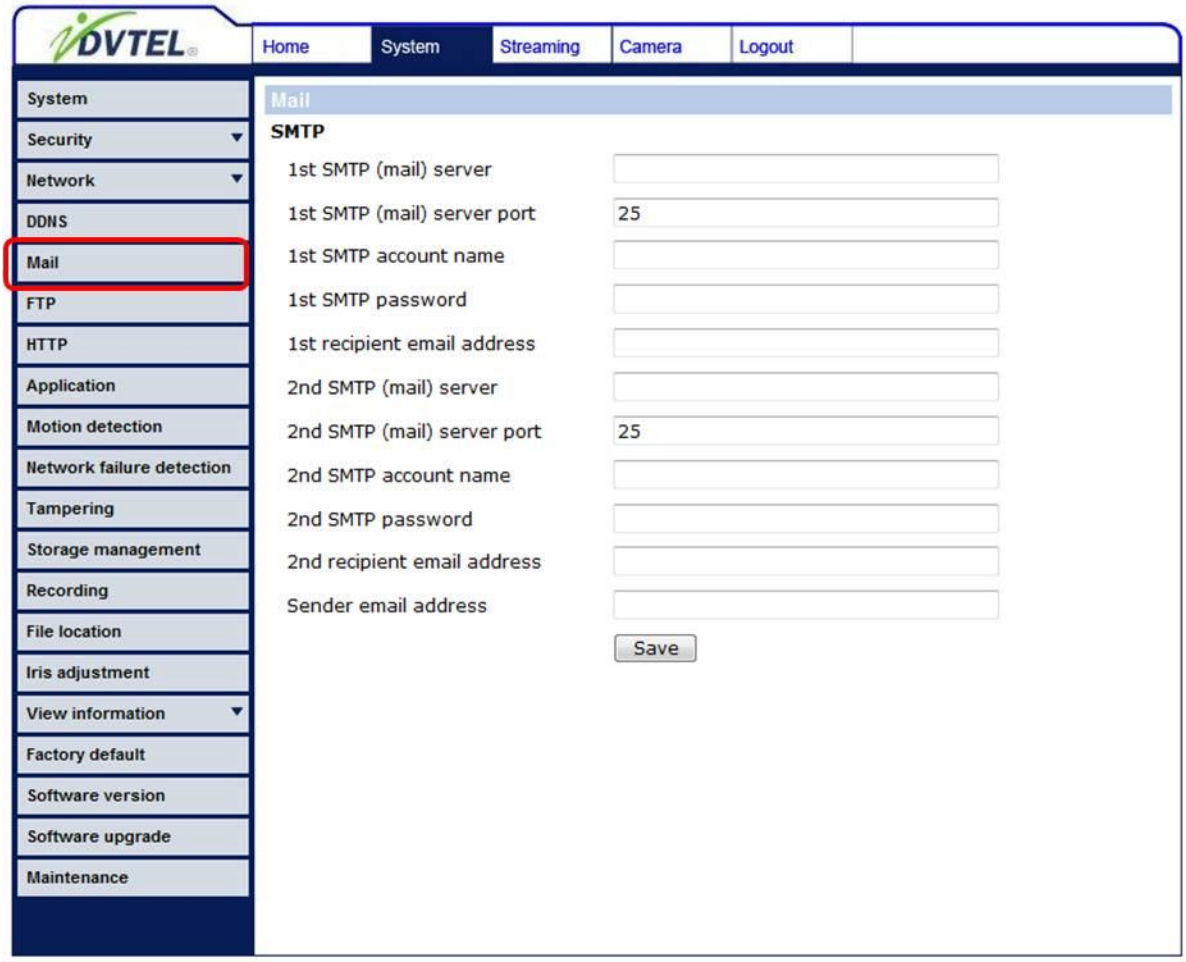
- **Provider**
  Select a DDNS host provider name from the drop-down list.
- **Host name**
  Enter the registered domain name in the field.
- **Username/E-mail**
  Enter the username or e-mail address required by the DDNS provider for authentication.
- **Password/Key**
  Enter the password or key required by the DDNS provider for authentication.

Click "**Save**" to save the setting.

6.3.5 Mail

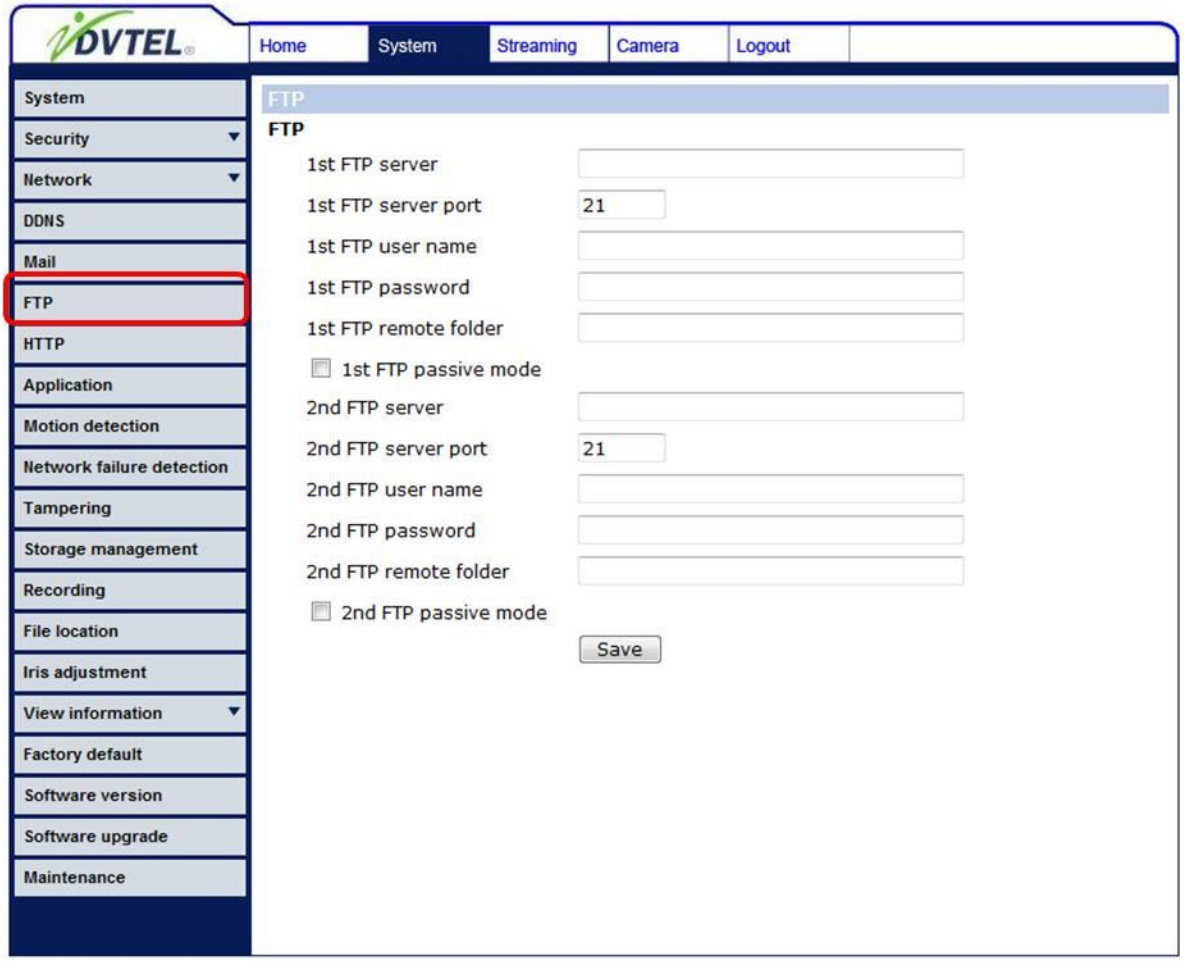
The Administrator can send an e-mail via Simple Mail Transfer Protocol (SMTP) when an alarm is triggered. SMTP is a protocol for sending e-mail messages between servers. SMTP is a relatively simple, text-based protocol, where one or more recipients of a message are specified and the message text is transferred.

Two SMTP server accounts can be configured. Settings include SMTP Server, account name, password, and e-mail address settings. Enter the details in the appropriate fields. For SMTP server details, contact your network service provider. Click "**Save**" when finished. The configuration page is shown below.



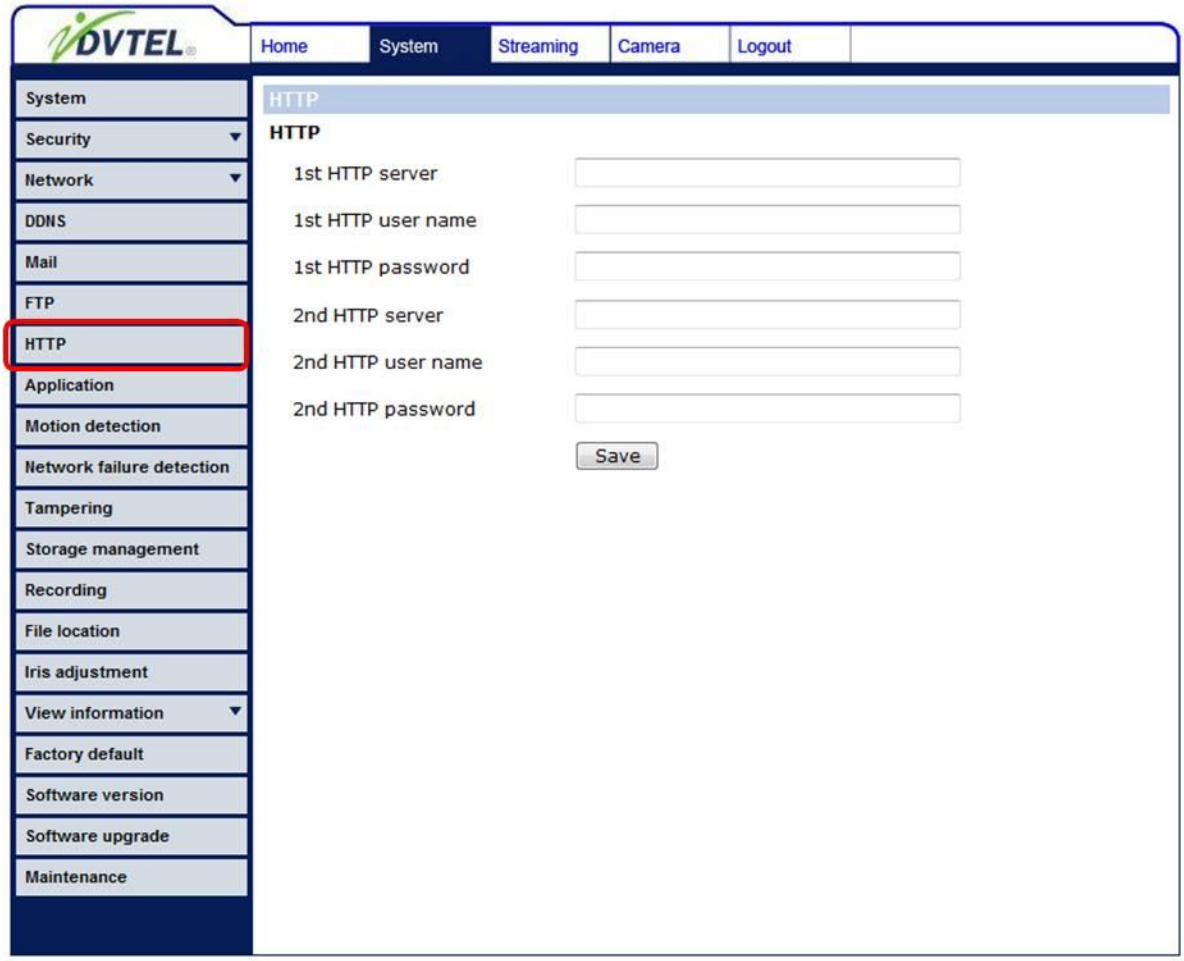
6.3.6 FTP

The Administrator can send an alarm message to up to two File Transfer Protocol (FTP) sites when motion is detected. Settings include first and second server, server port, user name, password, and remote folder. Enter the details in the appropriate fields. Click "**Save**" when finished. The FTP setting page is shown below.



6.3.7 HTTP

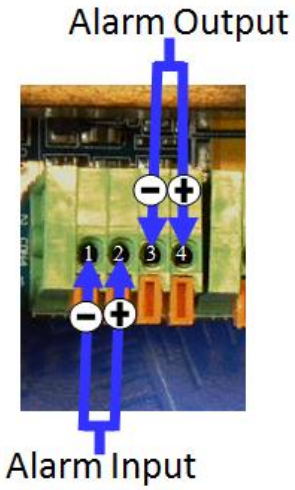
An HTTP notification server listens for notification messages of triggered events sent from cameras. You can set up to two notification server accounts. <Alarm> triggered and <Motion Detection> notifications can be sent to the specified HTTP server. Enter the HTTP details, including server, user name, and password, in the appropriate fields. Click "**Save**" when finished. The HTTP setting page is shown below.



Refer to Application: Send HTTP notification and Motion Detection for HTTP Notification settings.

6.3.8 Application

Alarm Pin Definition



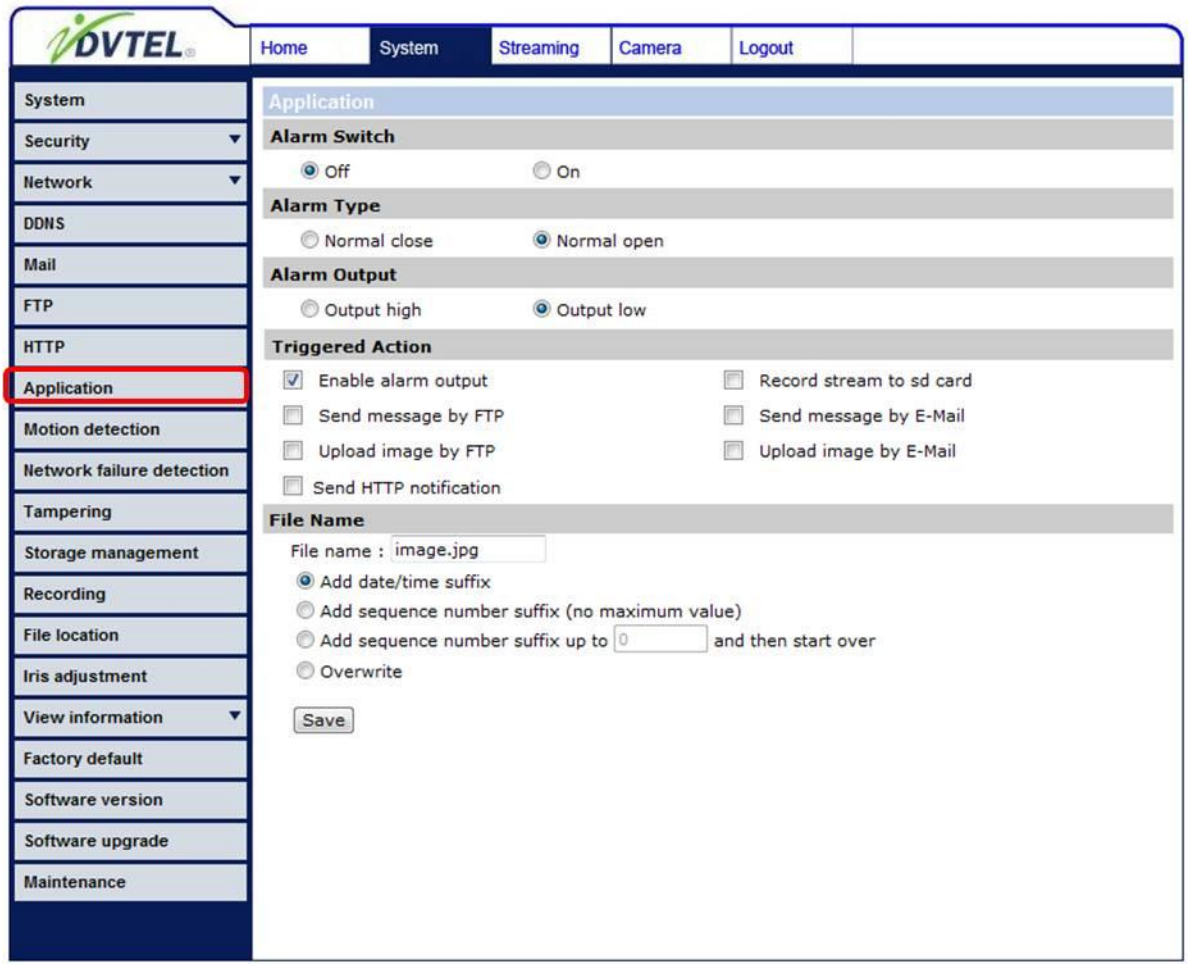
PIN 1. Input-

PIN 2. Input+

PIN 3. Output-

PIN 4. Output+

The alarm configuration page is shown below.



Alarm Switch

The Administrator can enable or disable the alarm function.

Alarm Type

Select an alarm type ("**Normal close**" or "**Normal open**") that corresponds with the alarm application.

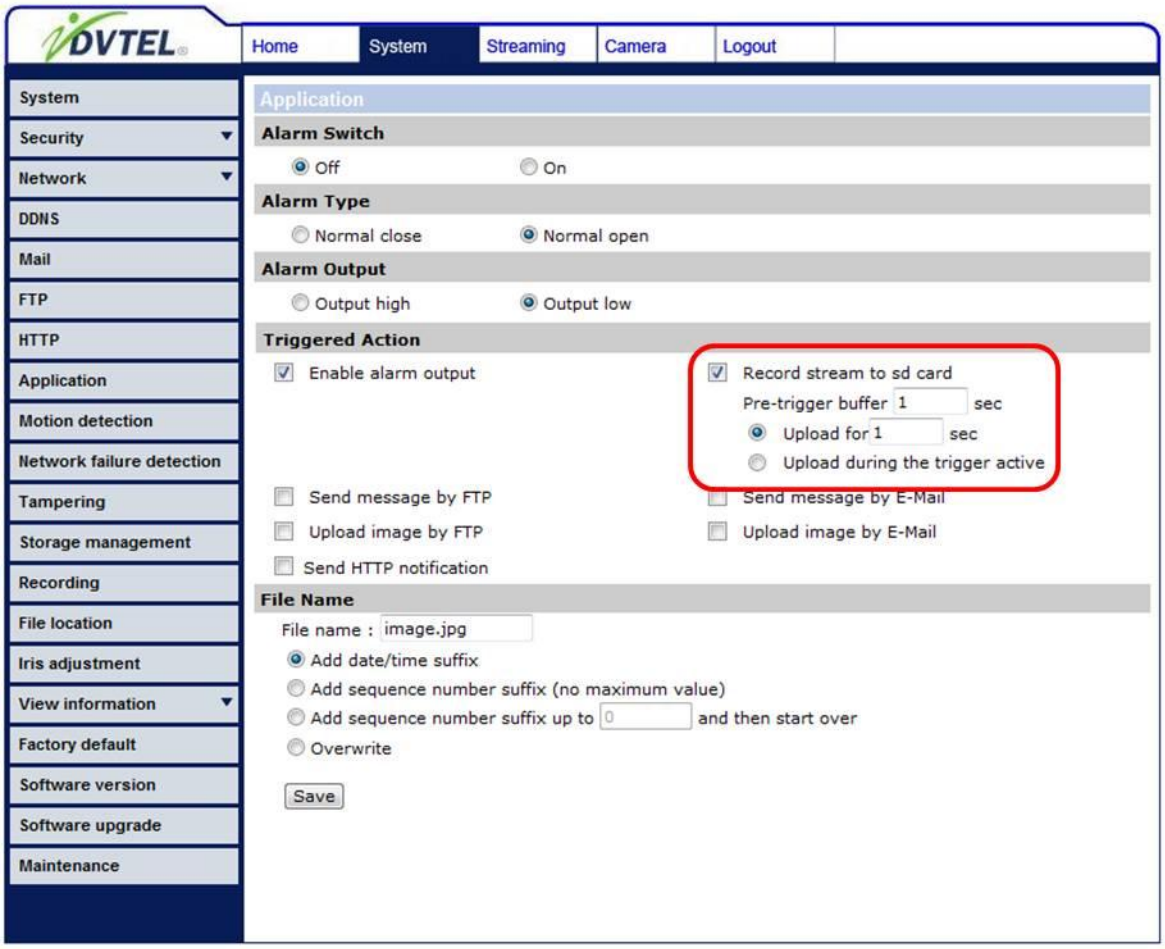
Alarm Output

Define the normal alarm output signal as "**Output high**" or "**Output low**", according to the current alarm application.

Triggered Action

The Administrator can specify various alarm actions to be taken when an alarm is triggered. The options are listed below.

- **Enable Alarm Output**
  Select this box to enable alarm relay output.
- **Record Stream to SD Card**
  Select this box in order to save the alarm-triggered recording into your Micro SD card. Enter the number of seconds for the pre-trigger buffer. Select the first radial button if you wish to upload for a specified length of time and enter the number of seconds. Alternatively, select the second radial button to upload during the active trigger.

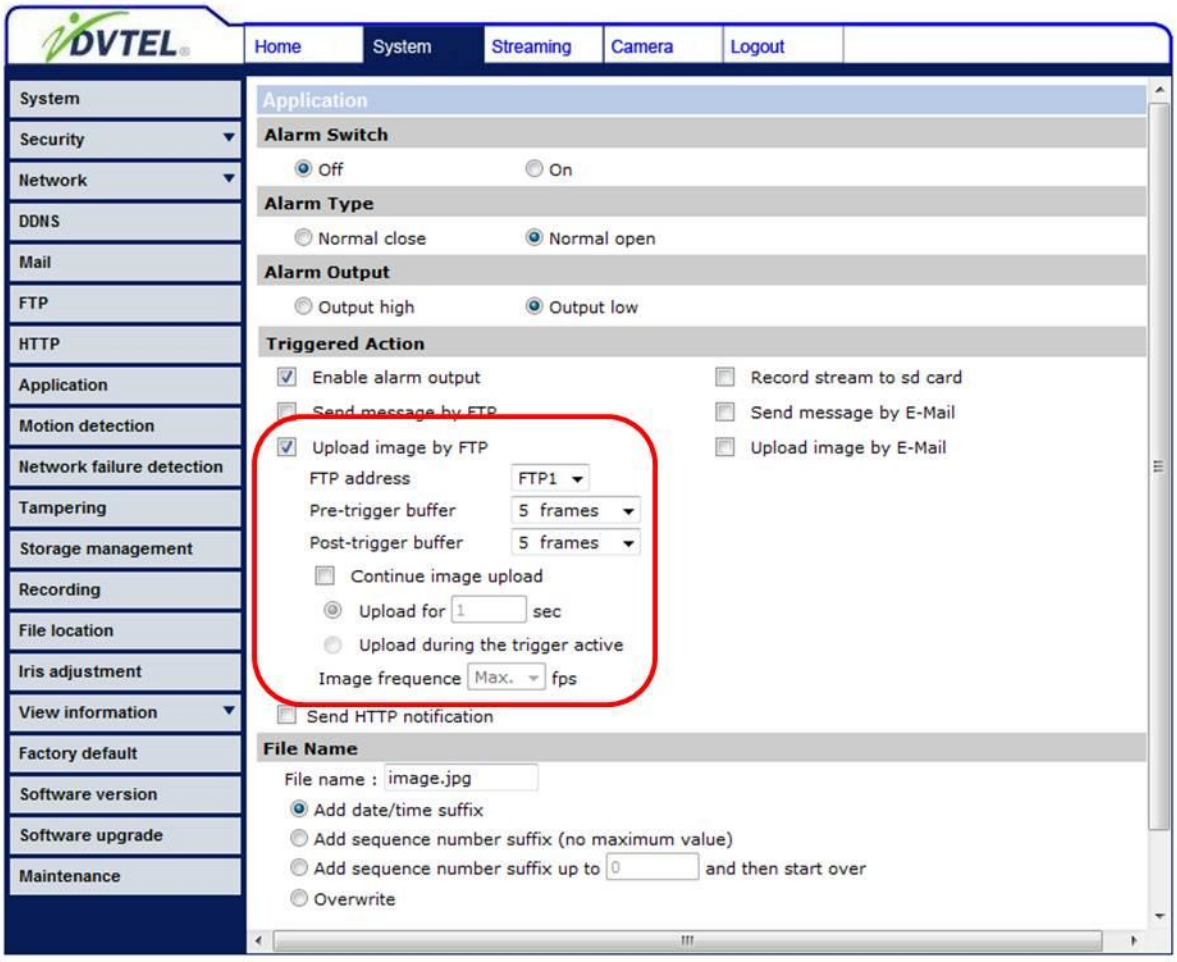


NOTE: Make sure that local recording (with a Micro SD/SDHC card) is activated so that this function can be implemented. See Recording for further details.

- **Send Message by FTP/E-Mail**
  Select whether to send an alarm message by FTP and/or e-mail when an alarm is triggered.
- **Upload Image by FTP**
  Select this box to assign an FTP site and configure the parameters shown in the figure below. When an alarm is triggered, event images are uploaded to the designated FTP site.

  Specify which one of two FTP addresses you wish to use from the drop-down menu. Select the number of frames for the pre-trigger and post-trigger buffers from the drop-down menu of 1-20 frames.

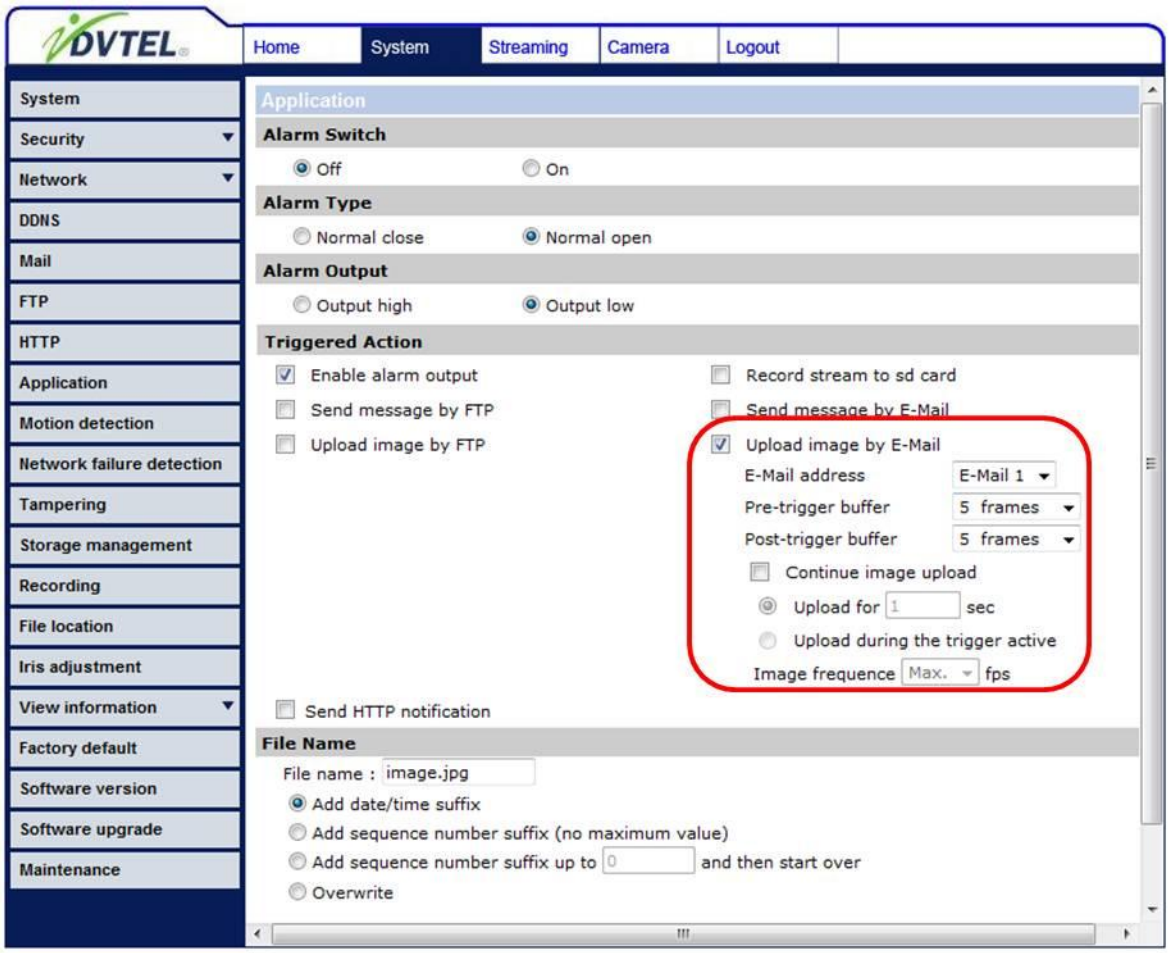
  Check the box for "**Continue image upload**" if you wish to use this option. If you wish to specify the length of time for the upload, click on this radial button and enter the number of seconds. If you wish to upload during the active trigger, click on this radial button. Finally, select the number of frames per second from the drop-down menu next to "**Image frequency**".


DVTEL
Home
System
Streaming
Camera
Logout
System
Security
Network
DDNS
Mail
FTP
HTTP
Application
Motion detection
Network failure detection
Tampering
Storage management
Recording
File location
Iris adjustment
View information
Factory default
Software version
Software upgrade
Maintenance
Application
Alarm Switch
Off
On
Alarm Type
Normal close
Normal open
Alarm Output
Output high
Output low
Triggered Action
Enable alarm output
Record stream to sd card
Send message by E-Mail
Upload image by FTP
Upload image by E-Mail
FTP address
FTP1
Pre-trigger buffer
5 frames
Post-trigger buffer
5 frames
Continue image upload
Upload for 1 sec
Upload during the trigger active
Image frequence Max. fps
Send HTTP notification
File Name
File name : image.jpg
Add date/time suffix
Add sequence number suffix (no maximum value)
Add sequence number suffix up to 0 and then start over
Overwrite

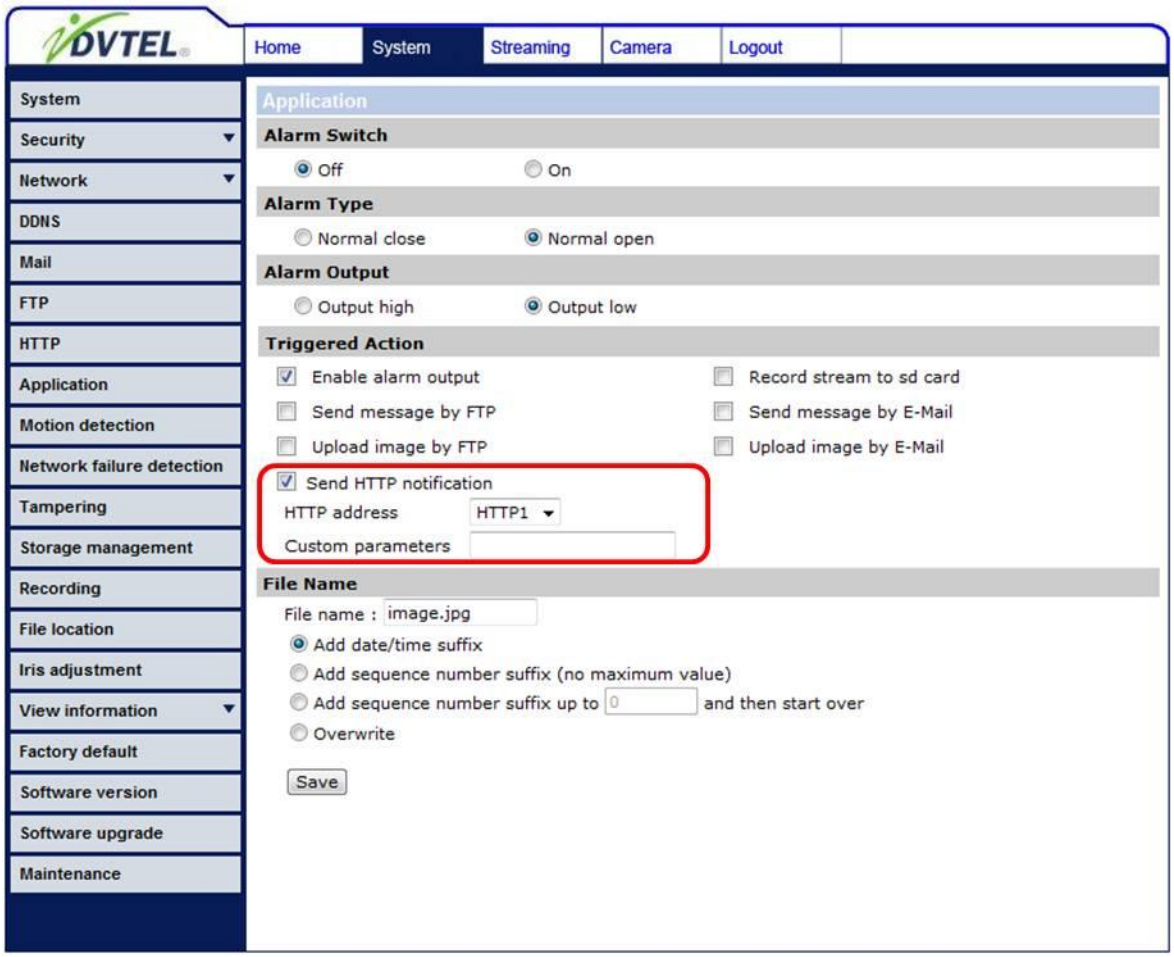
- **Upload Image by E-Mail**
  Select this box in order to assign an e-mail address and configure various parameters as shown in the figure below. When the alarm is triggered, event images are sent to one of two designated e-mail addresses. Select the number of frames for the pre-trigger and post-trigger buffers from the drop-down menu of 1-20 frames.

  Check the box for "**Continue image upload**" if you wish to use this option. If you wish to specify the length of time for the upload, click on this radial button and enter the number of seconds. If you wish to upload during the active trigger, click on this radial button. Finally, select the number of frames per second from the drop-down menu next to "**Image frequency**".

NOTE: Make sure that SMTP or FTP configuration has been completed. See Mail and FTP for further details.



- **Send HTTP notification**
  Check this box to specify the destination HTTP address and parameters for event notifications by the triggered alarm. When an alarm is triggered, the notification will be sent to one of two specified HTTP servers.



File Name

- **File Name**
  Enter a file name in the field, for example, "image.jpg". The uploaded image's file name format is set in this section. Select one that meets your requirements.

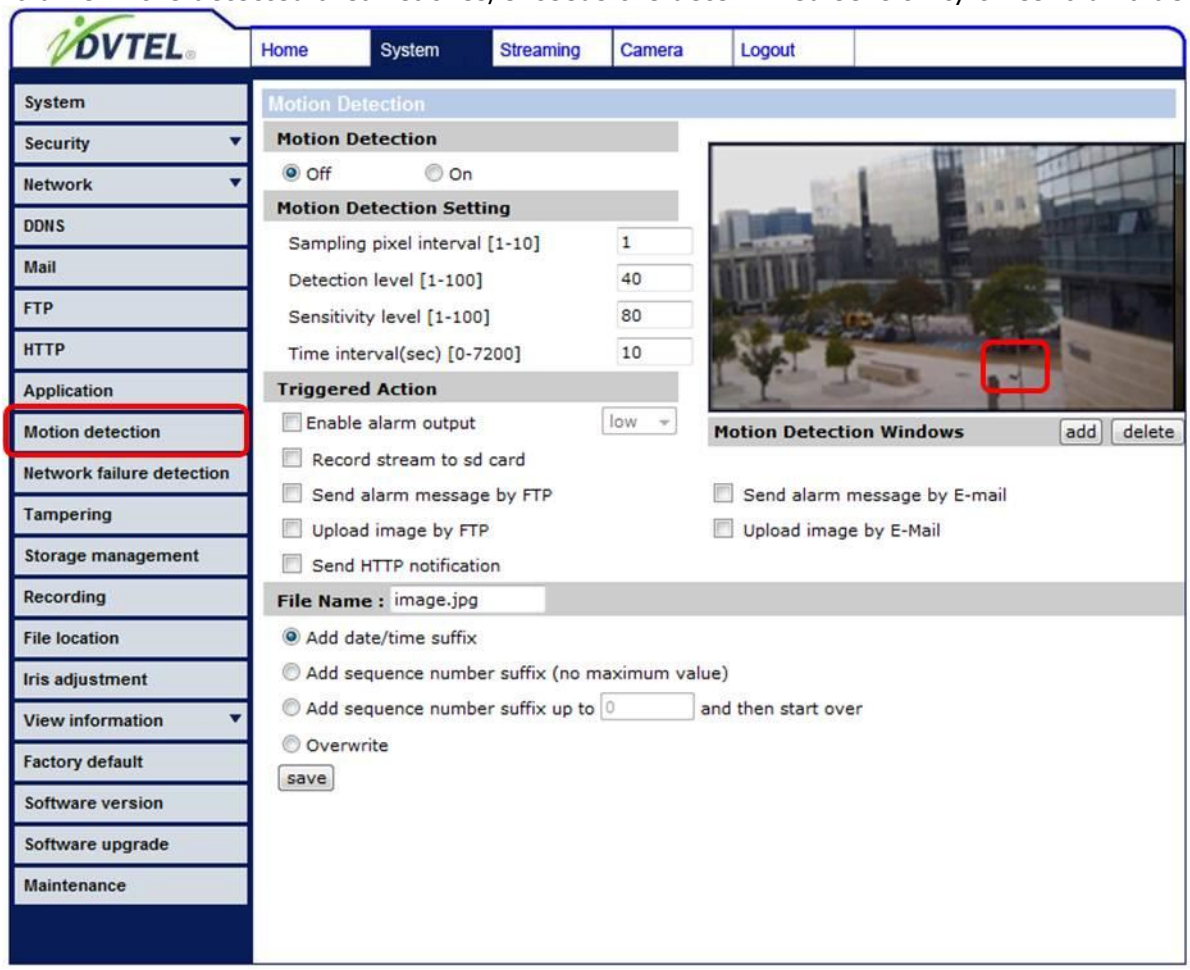
- **Add date/time suffix**
  File name: imageYYMMDD_HHNNSS_XX.jpg
  Y: Year, M: Month, D: Day
  H: Hour, N: Minute, S: Second
  X: Sequence Number

- **Add sequence number suffix (no maximum value)**
  File name: imageXXXXXXX.jpg
  X: Sequence Number
- **Add sequence number suffix (limited value)**
  File Name: imageXX.jpg
  X: Sequence Number
  The file name suffix ends at the number being set. For example, if the setting is up to "10," the file name will start from 00, end at 10, and then start over again.
- **Overwrite**
  The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

After entering all the settings, click on the "**Save**" button.

6.3.9 Motion Detection

The motion detection function detects suspicious motion and triggers alarms when motion volume in the detected area reaches/exceeds the determined sensitivity threshold value.

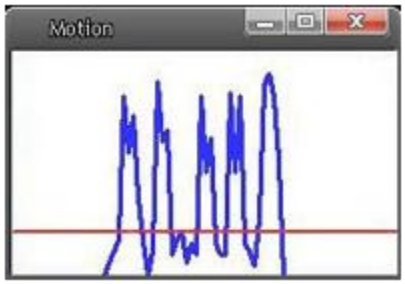


Within the Live View Pane on the Motion Detection setting page, there is a frame (**Motion Detection Window**) which is used for defining the motion detection area. To change the size of the Motion Detection Window, move the mouse cursor to the edge of the frame and drag it outward/inward. Moving the mouse to the center of the frame shifts the frame to the intended location.

Up to 10 Motion Detection Windows can be set. Press the "**Add**" button under the Live Video Pane to add a Motion Detection Window. To cancel a Motion Detection Window, move the mouse cursor to the selected Window and click on the "**Delete**" button.

If the Motion Detection function is activated, the Motion pop-up window appears.

When motion is detected, the signals are displayed in the Motion window as shown below.



Detailed settings for Motion Detection are as follows:

Motion Detection
Activate this function by selecting "**On**" or "**Off**". Default setting is "**Off**".

Motion Detection Setting
Various parameters of Motion Detection can be set in this section.

- **Sampling pixel interval [1-100]:**
  The default value is 10, which means the system will take one sampling pixel for every 10 pixels.
- **Detection level [1-100]:**
  The default level is 10. The item is to set detection level for each sampling pixel; the smaller the value, the more sensitive it is.
- **Sensitivity level [1-100]:**
  The default level is 80, which means if 20% or more sampling pixels are detected differently, the system will detect motion. The bigger the value, the more sensitive it is. When the value is bigger, the red horizontal line in the motion indication window will be lowered accordingly.
- **Time interval (sec) [0-7200]:**
  The default interval is 10. The value is the interval between each detected motion.

Triggered Action

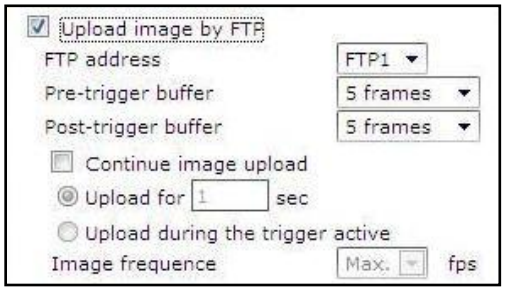
The Administrator can specify alarm actions to be taken when motion is detected. The options are listed as follows:

- **Enable Alarm Output**
  Check this box to select the predefined type of alarm output in order to enable alarm relay output when motion is detected. Select either "**Low**" or "**High**" relay output.
- **Record Stream to SD Card**
  Select this box to store the motion detection recording in a Micro SD/SDHC card when motion is detected.

  NOTE: Make sure that local recording (with a Micro SD/SDHC card) is activated so that this function can be implemented. See Recording for further details.
- **Send Alarm Message by FTP/E-Mail**
  Select whether to send an alarm message by FTP and/or e-mail when motion is detected.
- **Upload Image by FTP**
  Select this box in order to upload an image by FTP and to configure various parameters as shown in the figure below. When motion is detected, event images are uploaded to the designated FTP site.

  Specify which FTP address you wish to use from the drop-down menu. Select the number of frames for the pre-trigger and post-trigger buffers from the drop-down menu of 1-20 frames.

  Check the box for "**Continue image upload**" if you wish to use this option. If you wish to specify the length of time for the upload, click on this radial button and enter the number of seconds. If you wish to upload during the active trigger, click on this radial button. Finally, select the number of frames per second from the drop-down menu next to "**Image frequency**".

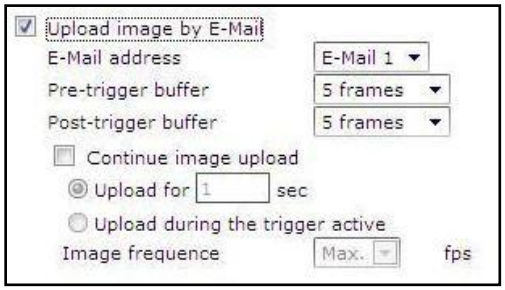


- **Upload Image by E-Mail**
  Select this box in order to assign an e-mail address and configure various parameters as shown in the figure below. When motion is detected, event images are sent to one of two designated e-mail addresses. Select the number of frames for the pre-trigger and post-trigger buffers from the drop-down menu of 1-20 frames.

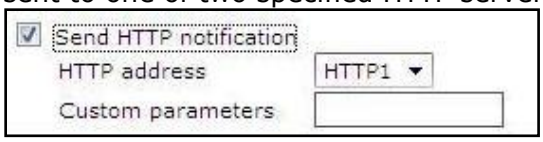
  Check the box for "**Continue image upload**" if you wish to use this option. If you wish to specify the length of time for the upload, click on this radial button and enter the number of seconds. If you wish to upload during the active trigger,

click on this radial button. Finally, select the number of frames per second from the drop-down menu next to "**Image frequency**".

NOTE: Make sure that SMTP or FTP configuration has been completed. See Mail and FTP for further details.



- **Send HTTP notification**
  Check this box to send a notification by HTTP. Select the destination HTTP address from the drop-down menu and specify the parameters for event notifications by <Motion Detection> triggered. When an alarm is triggered, the notification will be sent to one of two specified HTTP servers.



File Name

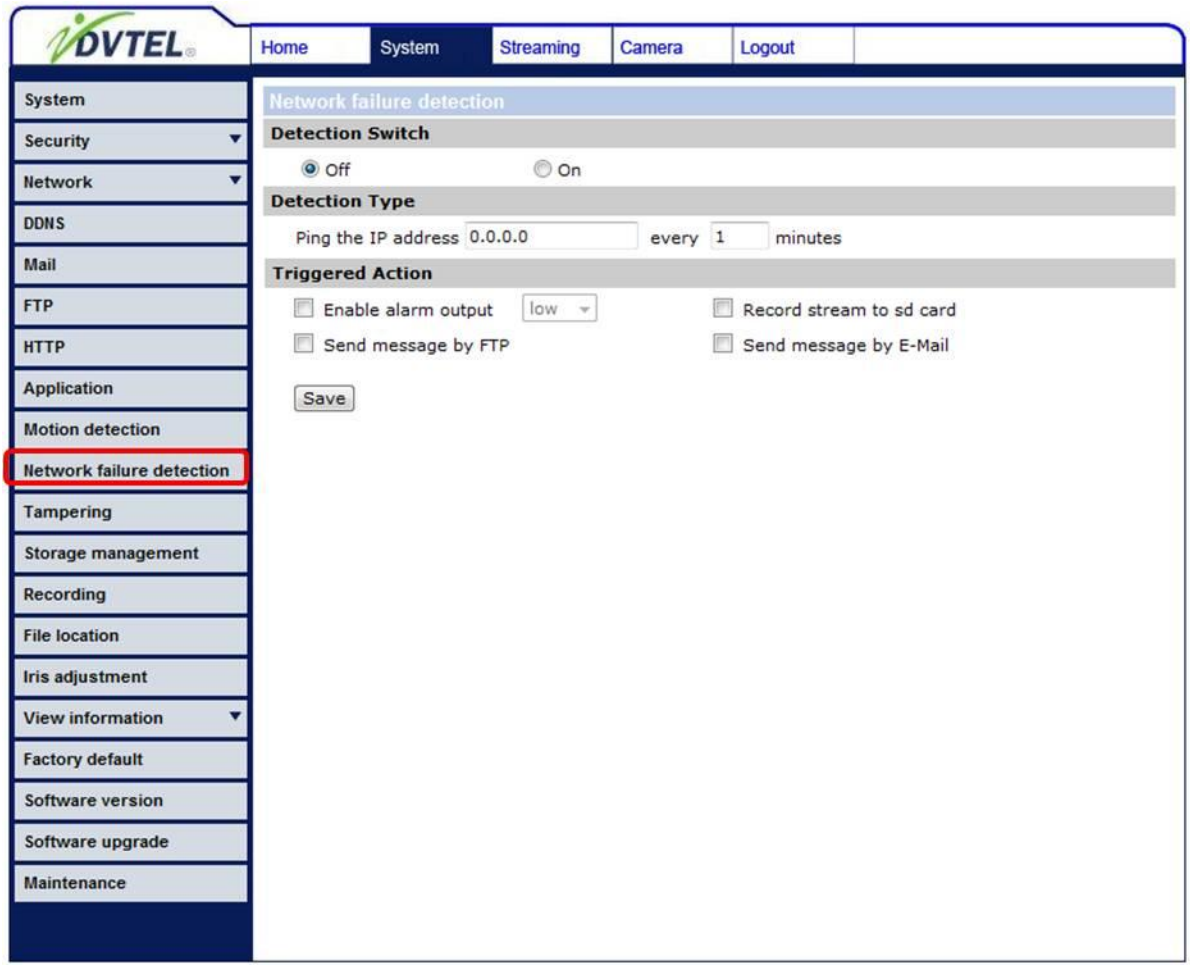
The uploaded image's filename format is set in this section. Select one that meets your requirements.

Save

Click the "**Save**" button to save your Motion Detection settings.

6.3.10 Network Failure Detection

The network failure detection function sends a ping to a device to ensure that it is operating on the network.



Detection Switch

The Administrator can enable or disable the detection function by selecting "**On**" or "**Off**".

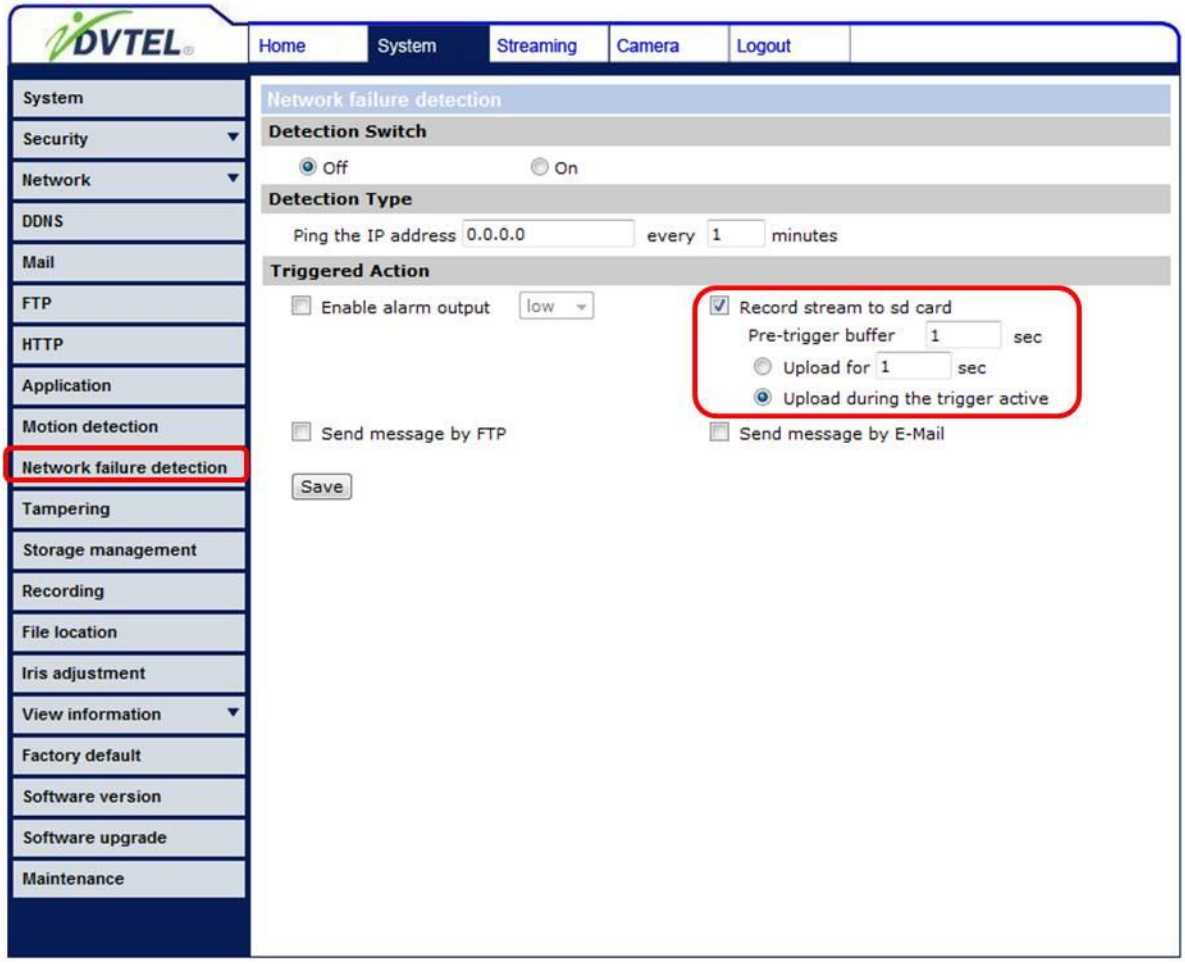
Detection Type

Enter the IP address to ping and the time interval in minutes between pings.

Triggered Action

The Administrator can specify various alarm actions to be taken when an alarm is triggered. The options are listed below.

- **Enable Alarm Output**
  Select this box to enable alarm relay output. Select either "**Low**" or "**High**" relay output.
- **Record Stream to SD Card**
  Select this box in order to save the alarm-triggered recording into your Micro SD card. Enter the number of seconds for the pre-trigger buffer. Select the first radial button if you wish to upload for a specified length of time and enter the number of seconds. Alternatively, select the second radial button to upload during the active trigger.

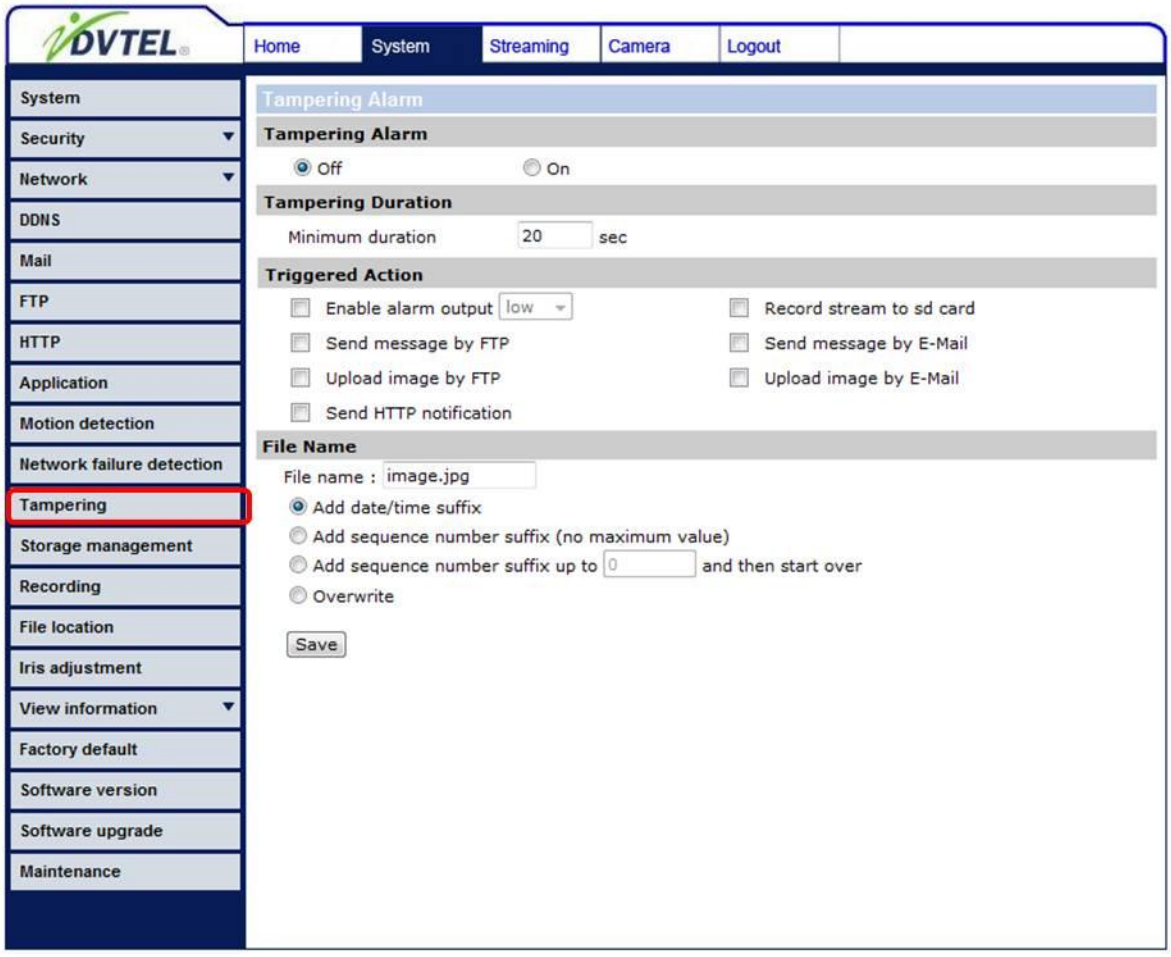


NOTE: Make sure that local recording (with a Micro SD/SDHC card) is activated so that this function can be implemented. See Recording for further details.

- **Send Message by FTP/E-Mail**
  Select whether to send an alarm message by FTP and/or e-mail when a network failure is detected.

6.3.11 Tampering Alarm

The Tampering Alarm function protects the camera against tampering such as deliberate redirection, blocking, paint spray, and lens cover obstruction by using video analysis. In response to such events, it sends notifications or uploads snapshots to the specified destination(s).



Detection of camera tampering is achieved by measuring the differences between the older frames of video (which are stored in buffers) and more recent frames.

Tampering Alarm

Turn the Tampering Alarm function "**On**" or "**Off**". The default setting is "**Off**".

Tampering Duration

The tampering duration is the time for video analysis to determine whether camera tampering has occurred. Minimum duration defines the tampering threshold. A longer duration represents a higher threshold. The minimum duration time ranges from 10 to 3600 seconds.

Triggered Action

Specify the alarm actions to be taken when tampering is detected. The options are as follows:

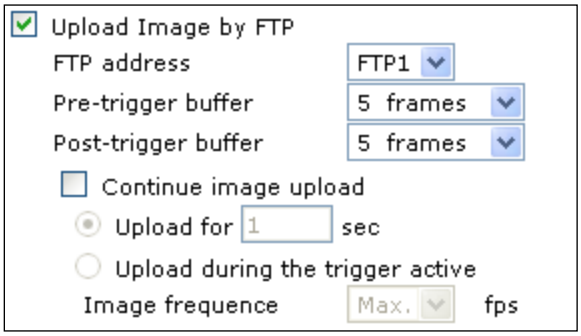
- **Enable Alarm Output**
  Check this box and select the predefined type of alarm output ("**high**" or "**low**") to enable alarm relay when tampering is detected.
- **Record stream to SD Card**
  Select this box to store the Tampering Alarm recording in a Micro SD/SDHC card when tampering is detected.

NOTE: make sure the local recording (with Micro SD/SDHC card) is activated so that this function can be implemented. See Recording for further details.

- **Send Alarm Message by FTP/E-Mail**
  Select whether to send an alarm message by FTP and/or e-mail when tampering is detected.
- **Upload Image by FTP**
  Select this box in order to upload an image by FTP and to configure various parameters as shown in the figure below. When motion is detected, event images are uploaded to the designated FTP site.

  Specify which FTP address you wish to use from the drop-down menu. Select the number of frames for the pre-trigger and post-trigger buffers from the drop-down menu between 1-20 frames.

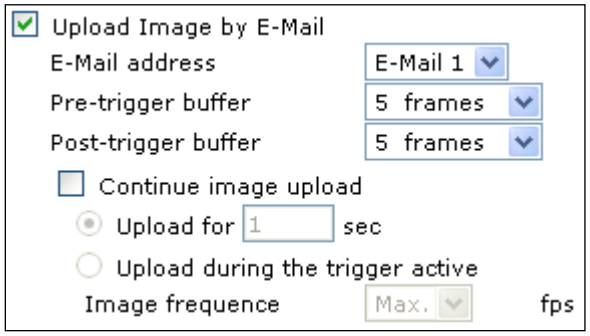
  Check the box for "**Continue image upload**" if you wish to use this option. If you wish to specify the length of time for the upload, click on this radial button and enter the number of seconds. If you wish to upload during the active trigger, click on this radial button. Finally, select the number of frames per second from the drop-down menu next to "**Image frequency**".


Upload Image by FTP
FTP address
FTP1
Pre-trigger buffer
5 frames
Post-trigger buffer
5 frames
Continue image upload
Upload for 1 sec
Upload during the trigger active
Image frequence
Max.
fps

- **Upload Image by E-Mail**
  Select this box in order to assign an e-mail address and configure various parameters as shown in the figure below. When motion is detected, event images are sent to one of two designated e-mail address.

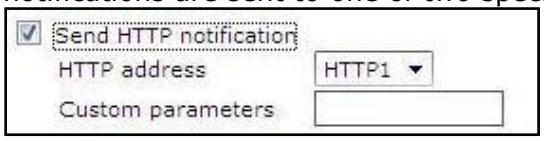
  Specify which of two e-mail addresses you wish to use from the drop-down menu. Select the number of frames for the pre-trigger and post-trigger buffers from the drop-down menu between 1-20 frames.

  Check the box for "**Continue image upload**" if you wish to use this option. If you wish to specify the length of time for the upload, click on this radial button and enter the number of seconds. If you wish to upload during the active trigger, click on this radial button. Finally, select the number of frames per second from the drop-down menu next to "**Image frequency**".



NOTE: Make sure SMTP or FTP configuration has been completed. See Mail and FTP for further details.

- **Send HTTP notification**
  Check this box to select the destination HTTP address and specify the parameters for HTTP notifications. When the Tampering Alarm is triggered, the HTTP notifications are sent to one of two specified HTTP servers.



File Name

The uploaded image's filename format is set in this section. Select one that meets your requirements.

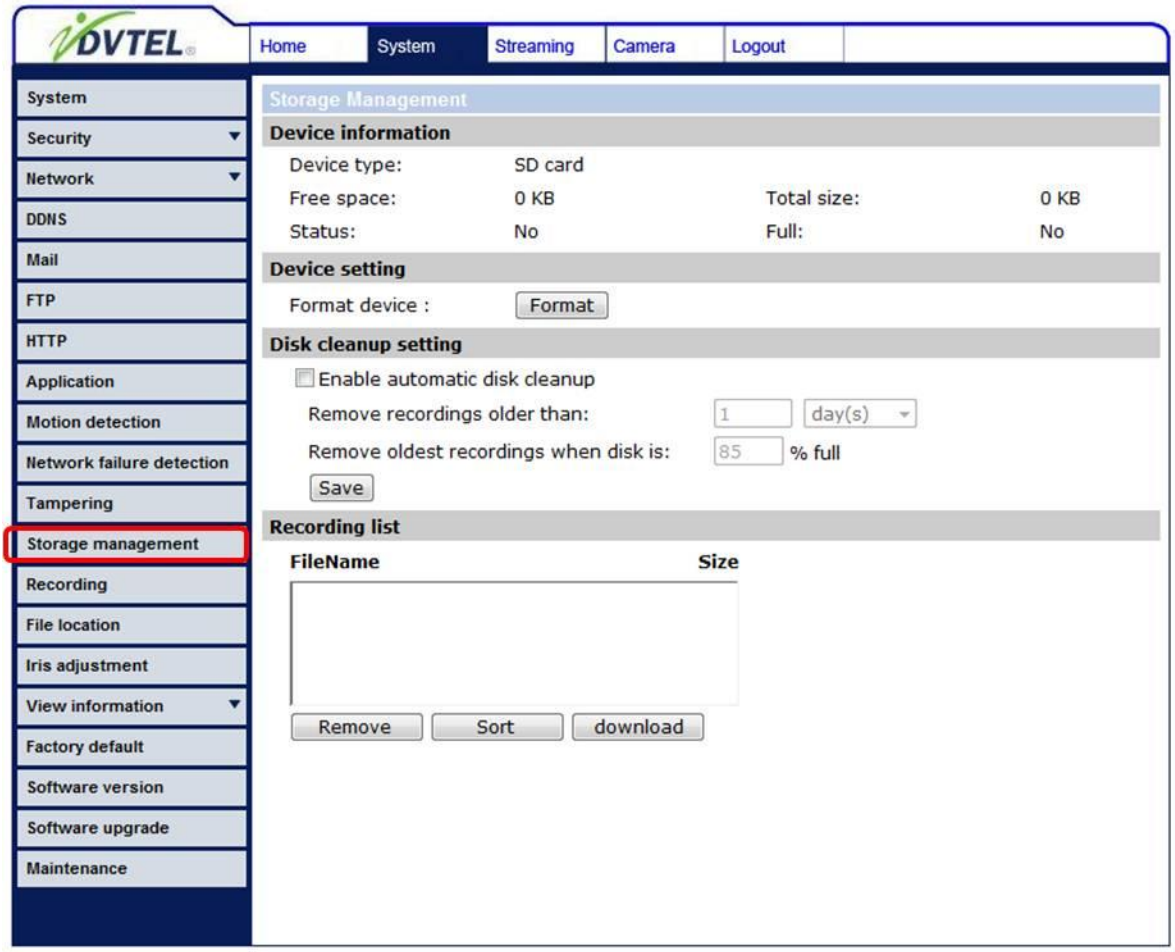
Save

Click the "**Save**" button to save the Tampering Alarm settings.

6.3.12 Storage Management

Users can implement local recording of up to 32GB on a Micro SD/SDHC card. The Storage Management page shows the capacity information of the Micro SD card and a recording list of all the recording files saved on the memory card. Users can also format the SD card and implement automatic recording cleanup on this page. To implement Micro SD card recording, go to the "Recording" page (see Recording) for activation.

NOTE: Format the Micro SD/SDHC card when using it for the first time. Formatting also is required when a memory card has been used on one camera and is then transferred to a camera that uses a different software platform.



Device information

Upon inserting the Micro SD/SDHC card, card information, such as the memory capacity and status, is displayed.

Device setting

Press the "**Format**" button to format the memory card.

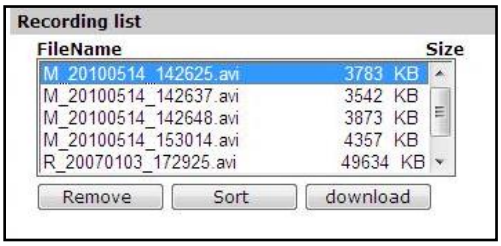
Disk cleanup setting

You can enable automatic recording cleanup by clicking on "**Enable automatic disk cleanup**". From the pull-down menu, specify the minimum length of time over which you wish to remove recordings, for example, remove recordings over 10 days old. Enter the percent of disk capacity used in order to remove the oldest recordings. Click "**Save**" when you finish.

Recording List

Each video file on the Micro SD/SDHC card is listed in the Recording list below. The maximum file size is 60 MB per file. See Recording for further details.

When the recording mode is set as "**Always**" (consecutive recording) and the Micro SD/SDHC card recording is enabled by events triggered, the system immediately saves a recorded event on the memory card once an event occurs. Then the camera will return to the regular recording mode after events recording.



- **Remove**
  To remove a file, first select the file and then press the "**Remove**" button.
- **Sort**
  Click the "**Sort**" button to list the files in the Recording list in order of name and date.

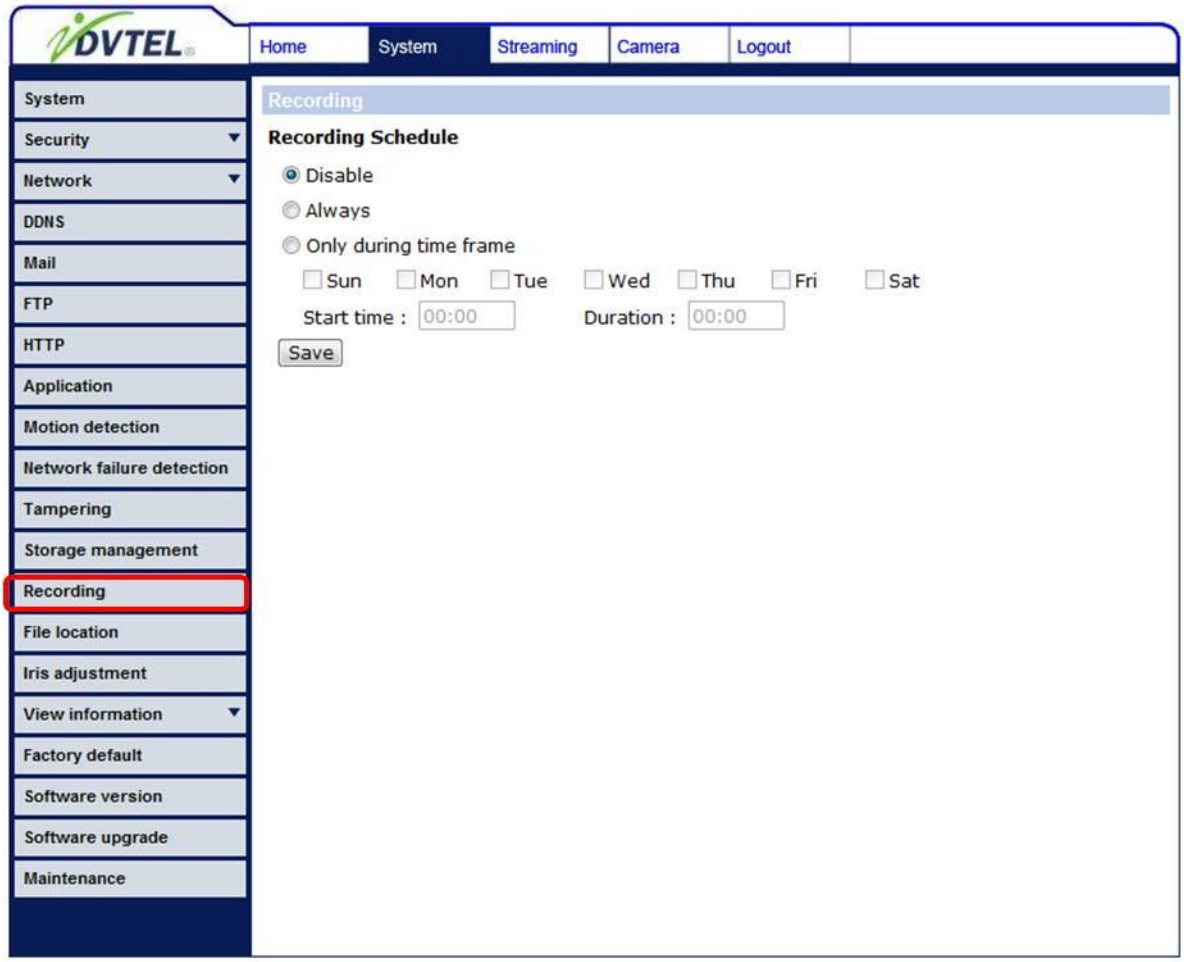
NOTE: The capital letter A, M, or R and underscore that appear at the beginning of the file name denote the type of recording: "**A**" stands for Alarm, "**M**" stands for Motion, and "**R**" stands for regular recording.

- **Download recording file**
  To open/download a video clip, first select the file and then click on the "**Download**" button at the bottom of the box. The selected file window pops up as shown below. Click on the AVI file to play the video in the player or download it to a specified location.

http://192.168.7.123/cgi-bin/sddownload.cgi?do...
http://192.168.7.123/cgi-bin/sddownload.cgi?downloadfilename=M_201
Download recording file
Select file list
File name:
M_20100514_142625.avi
Don
Internet
100%

6.3.13 Recording

In the Recording page, specify the recording schedule according to your requirements. Select one of three options: disable this function ("**Disable**"), always use this function ("**Always**"), or record only during a specified time frame ("**Only during time frame**"). The Recording page is displayed below.



Activating Micro SD/SDHC Card recording

Two types of schedule mode are available: Always and Time Frame setting. Users can setup the time frame to fit the recording schedule by selecting the day(s), start time and duration for recording. Choosing "**Always**" activates the Micro SD/SDHC Card Recording all the time. Click the "**Save**" button to confirm the schedule mode.

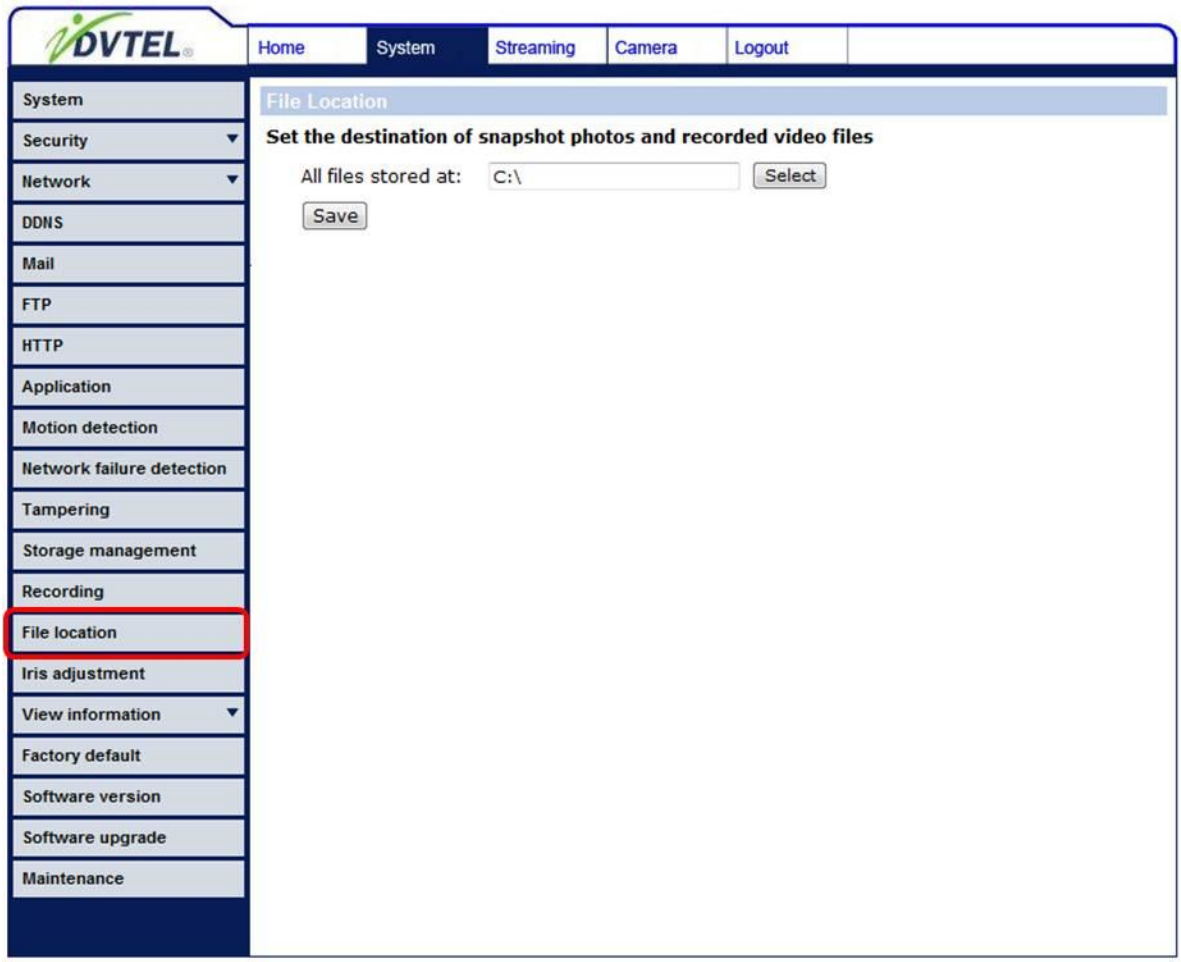
Terminating Micro SD/SDHC Card recording

Select "**Disable**" to terminate the recording function.

6.3.14 File Location

Specify a storage location for snapshots and web recordings. The default setting is: C:\. After confirming the setting, click "**Save**" to save the snapshots and recordings in the designated location.

NOTE: Make sure the selected file path contains valid characters.



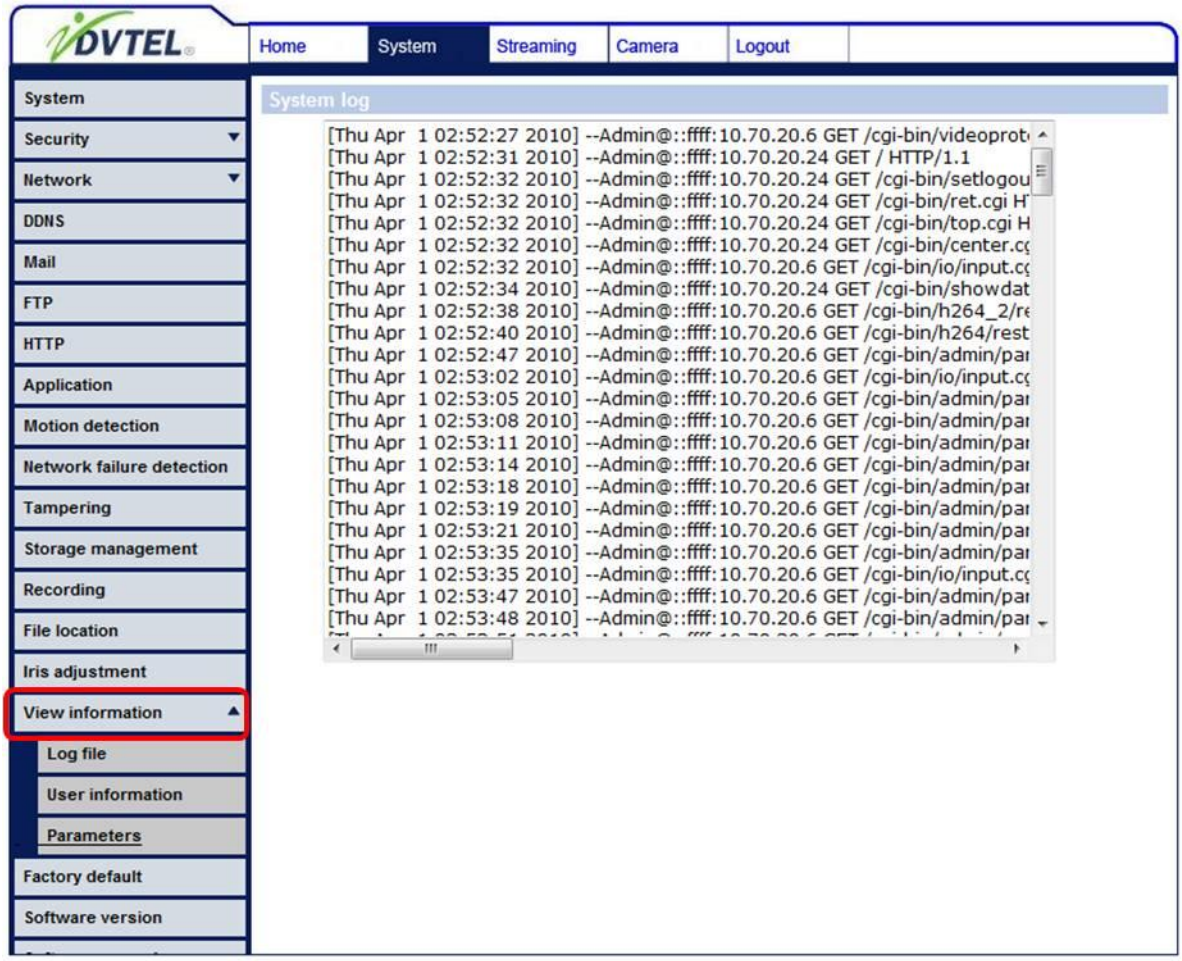
6.3.15 Iris Adjustment

Users of an auto-iris lens that needs adjustment should refer to the iris adjustment procedure in the setting page displayed below.

6.3.16 View Information

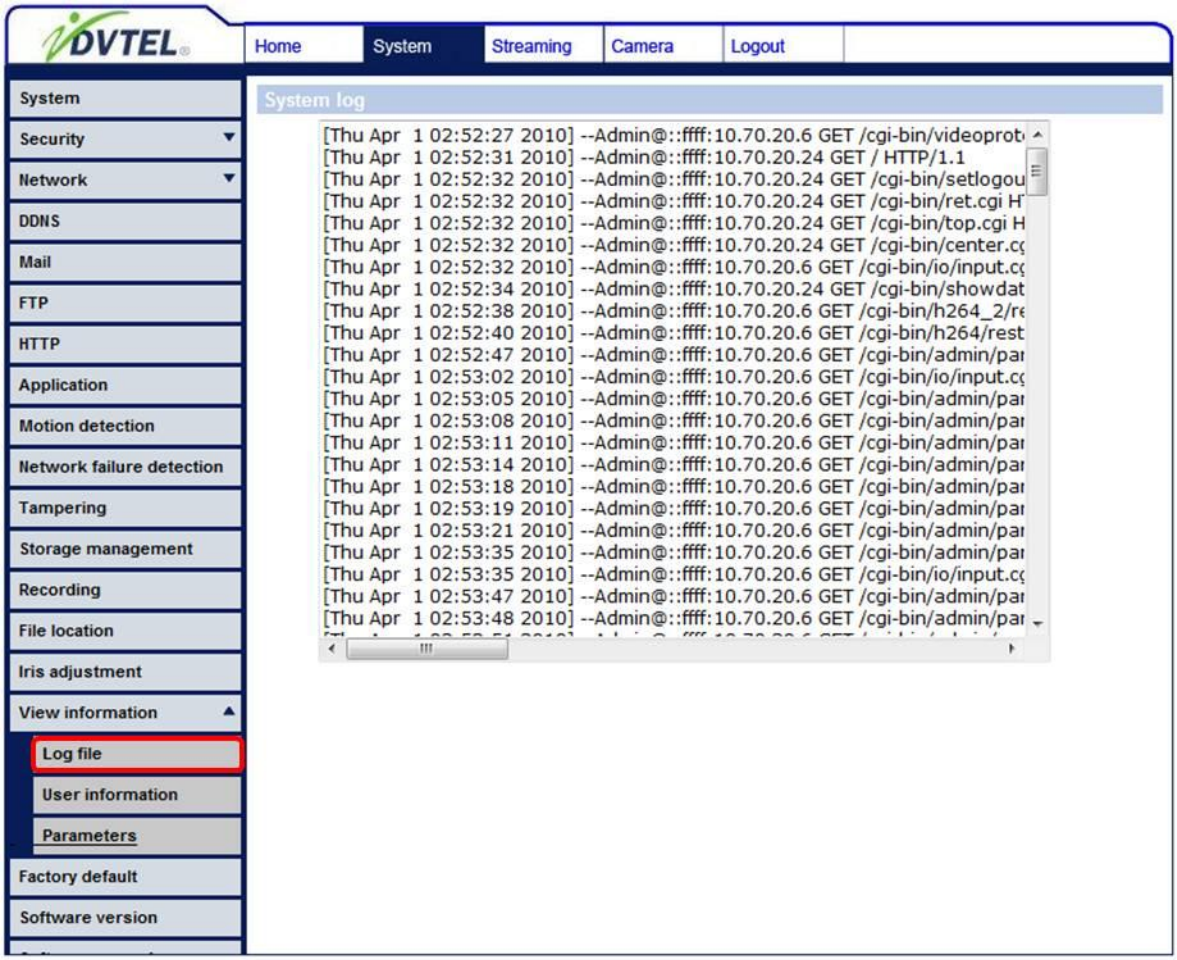
The View Information page enables you to view the following information:

- View log file
- User Information
- Parameters


DVTEL
Home
System
Streaming
Camera
Logout
System
Security
Network
DDNS
Mail
FTP
HTTP
Application
Motion detection
Network failure detection
Tampering
Storage management
Recording
File location
Iris adjustment
View information
Log file
User information
Parameters
Factory default
Software version
System log
[Thu Apr 1 02:52:27 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/videoprot
[Thu Apr 1 02:52:31 2010] --Admin@::ffff:10.70.20.24 GET / HTTP/1.1
[Thu Apr 1 02:52:32 2010] --Admin@::ffff:10.70.20.24 GET /cgi-bin/setlogou
[Thu Apr 1 02:52:32 2010] --Admin@::ffff:10.70.20.24 GET /cgi-bin/ret.cgi H
[Thu Apr 1 02:52:32 2010] --Admin@::ffff:10.70.20.24 GET /cgi-bin/top.cgi H
[Thu Apr 1 02:52:32 2010] --Admin@::ffff:10.70.20.24 GET /cgi-bin/center.cg
[Thu Apr 1 02:52:32 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/io/input.cg
[Thu Apr 1 02:52:34 2010] --Admin@::ffff:10.70.20.24 GET /cgi-bin/showdat
[Thu Apr 1 02:52:38 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/h264_2/re
[Thu Apr 1 02:52:40 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/h264/rest
[Thu Apr 1 02:52:47 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:02 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/io/input.cg
[Thu Apr 1 02:53:05 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:08 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:11 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:14 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:18 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:19 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:21 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:35 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:35 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/io/input.cg
[Thu Apr 1 02:53:47 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:48 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par

6.3.16.1 View Log File

Click on the link to view the system log file. The content of the file provides useful information about configuration and connections after system boot-up.

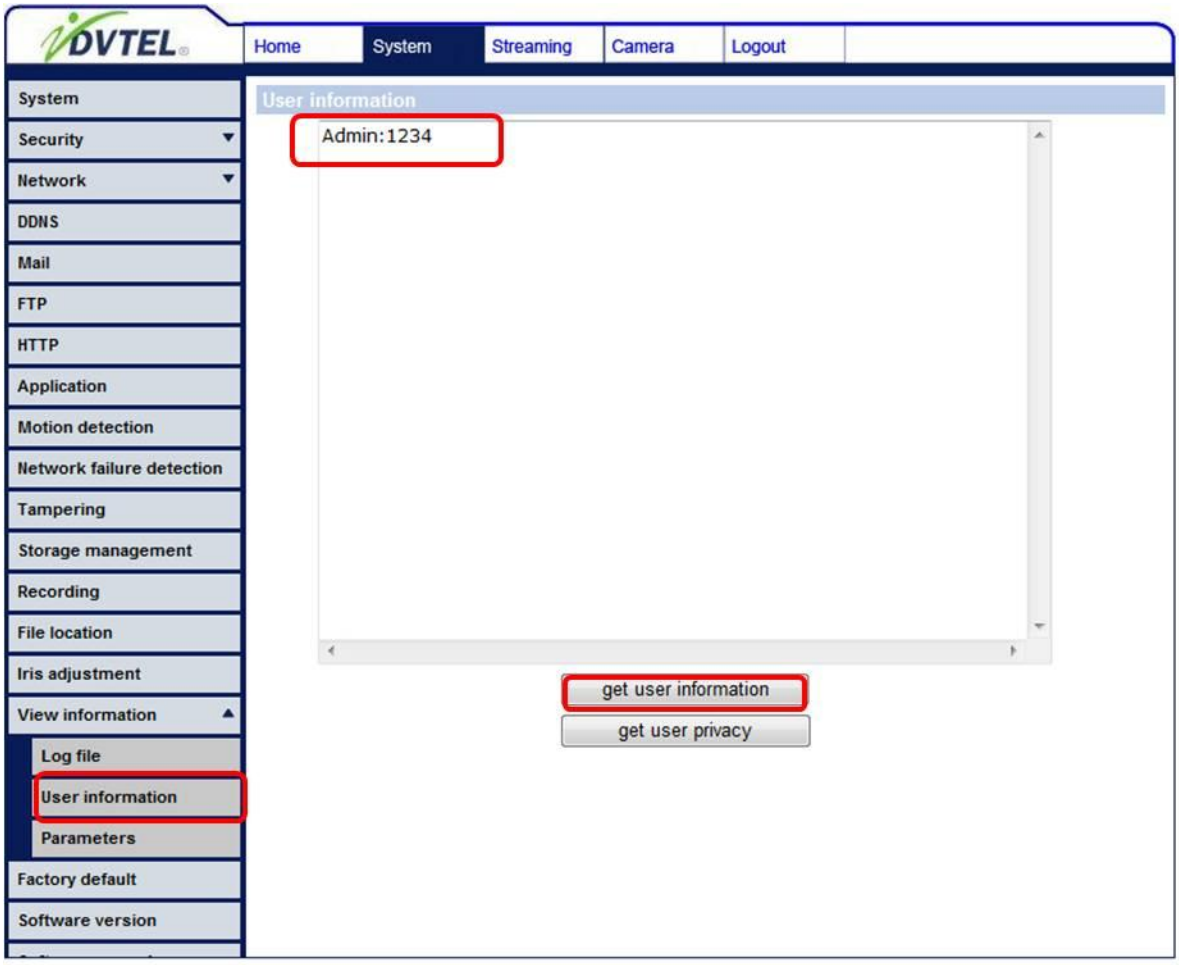

DVTEL
Home
System
Streaming
Camera
Logout
System
Security
Network
DDNS
Mail
FTP
HTTP
Application
Motion detection
Network failure detection
Tampering
Storage management
Recording
File location
Iris adjustment
View information
Log file
User information
Parameters
Factory default
Software version
System log
[Thu Apr 1 02:52:27 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/videoprot
[Thu Apr 1 02:52:31 2010] --Admin@::ffff:10.70.20.24 GET / HTTP/1.1
[Thu Apr 1 02:52:32 2010] --Admin@::ffff:10.70.20.24 GET /cgi-bin/setlogou
[Thu Apr 1 02:52:32 2010] --Admin@::ffff:10.70.20.24 GET /cgi-bin/ret.cgi H
[Thu Apr 1 02:52:32 2010] --Admin@::ffff:10.70.20.24 GET /cgi-bin/top.cgi H
[Thu Apr 1 02:52:32 2010] --Admin@::ffff:10.70.20.24 GET /cgi-bin/center.c
[Thu Apr 1 02:52:32 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/io/input.c
[Thu Apr 1 02:52:34 2010] --Admin@::ffff:10.70.20.24 GET /cgi-bin/showdat
[Thu Apr 1 02:52:38 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/h264_2/re
[Thu Apr 1 02:52:40 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/h264/rest
[Thu Apr 1 02:52:47 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:02 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/io/input.c
[Thu Apr 1 02:53:05 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:08 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:11 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:14 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:18 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:19 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:21 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:35 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:35 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/io/input.c
[Thu Apr 1 02:53:47 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par
[Thu Apr 1 02:53:48 2010] --Admin@::ffff:10.70.20.6 GET /cgi-bin/admin/par

6.3.16.2 User Information

The Administrator can view each added user's login information and privileges (see Security).

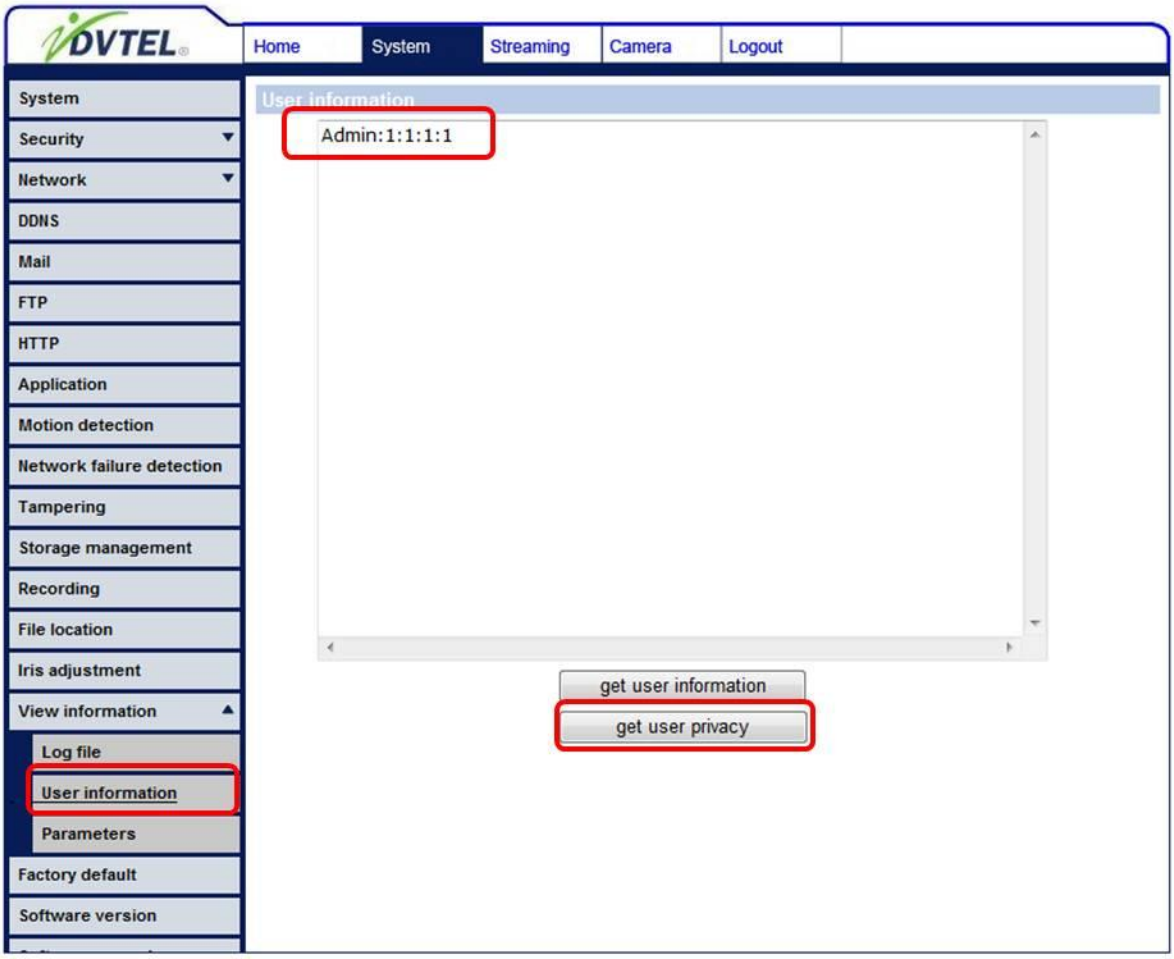
View User Login Information

All users in the network are listed in the "**User information**" screen shown below. Click on "**get user information**" to see each user's details. For example: **Admin: 1234**. This indicates that the user's login user name is "Admin" and the password is "1234".



View User Privilege

Click on "**get user privacy**" at the bottom of the page to view each user's privileges.



As the figure above shows:

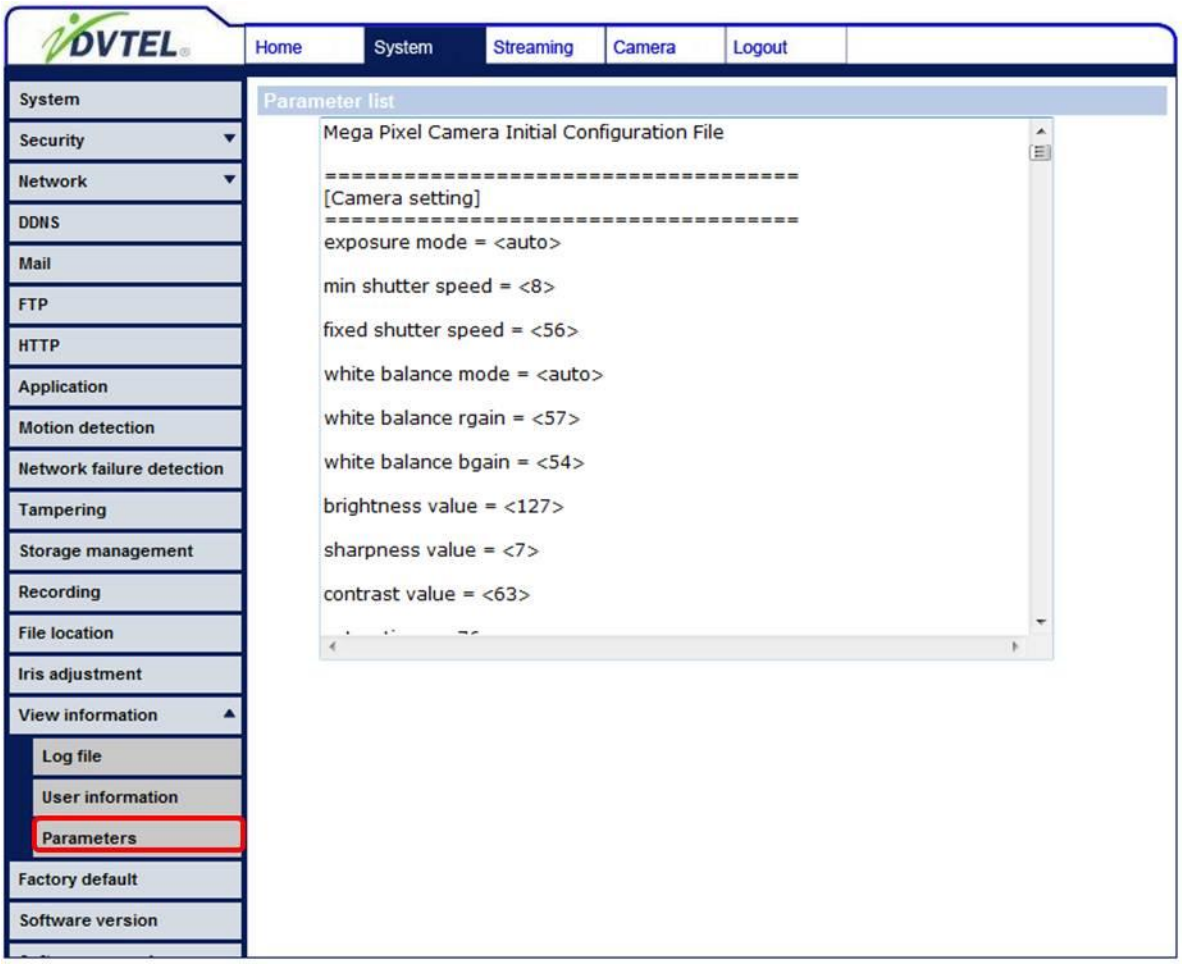
Admin: 1:1:1:1

1:1:1:1= I/O access : Camera control : Talk : Listen (see Security)

This denotes that the user name "Admin" is granted privileges of I/O access, Camera control, Talk and Listen.

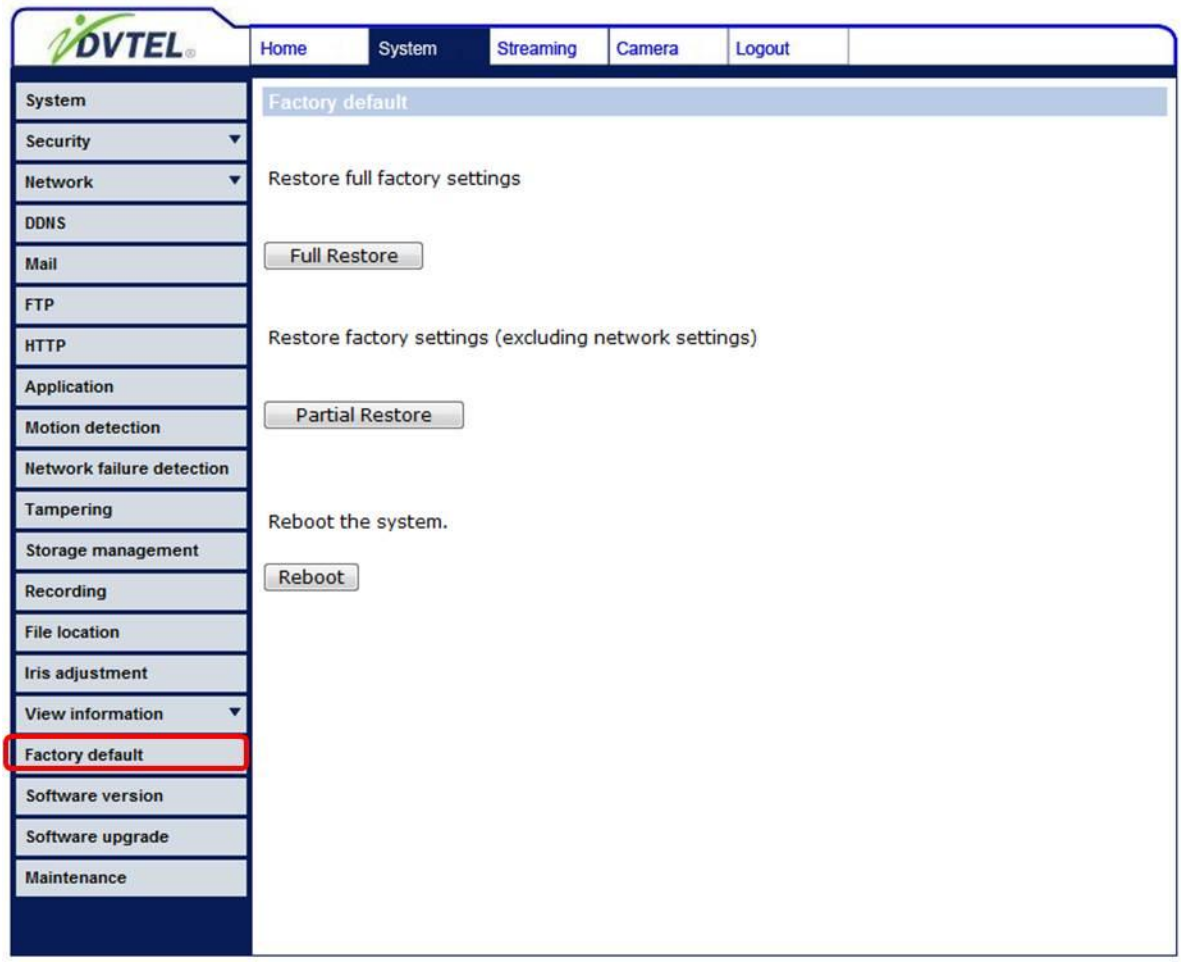
6.3.16.3 View Parameters

Click on this selection on the sidebar to view the entire system's parameter settings.



6.3.17 Factory Default

The factory default setting page is shown below. Follow the instructions to reset the camera to factory default settings if needed.



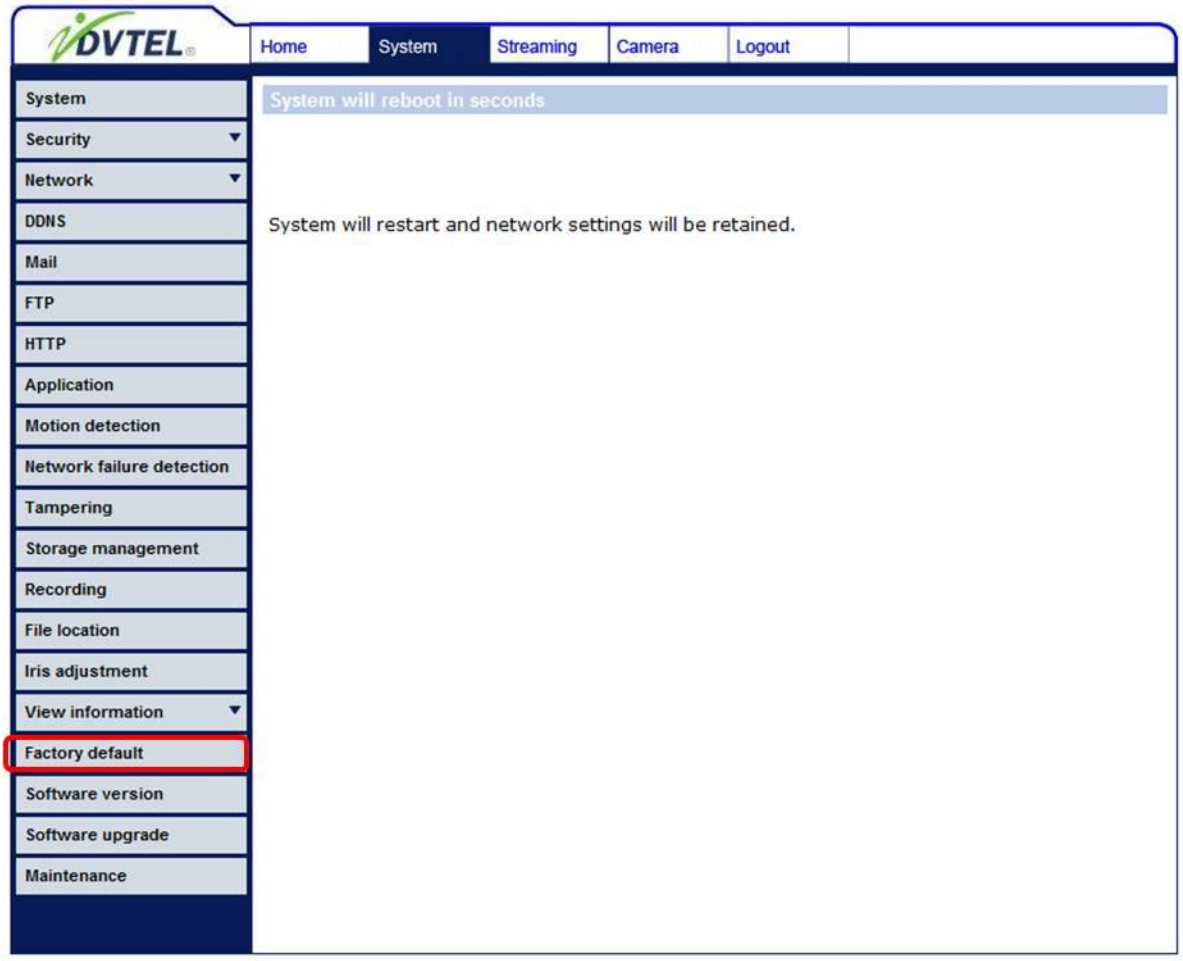
Full Restore

Click on the "**Full Restore**" button to restore the factory default settings. The system restarts in 30 seconds.

NOTE: The IP address and all other settings will be restored to factory default settings.

Partial Restore

Click on the "**Partial Restore**" button to restore the factory default settings, but save your network settings. The system restarts in 30 seconds. The following screen appears when selecting this option:

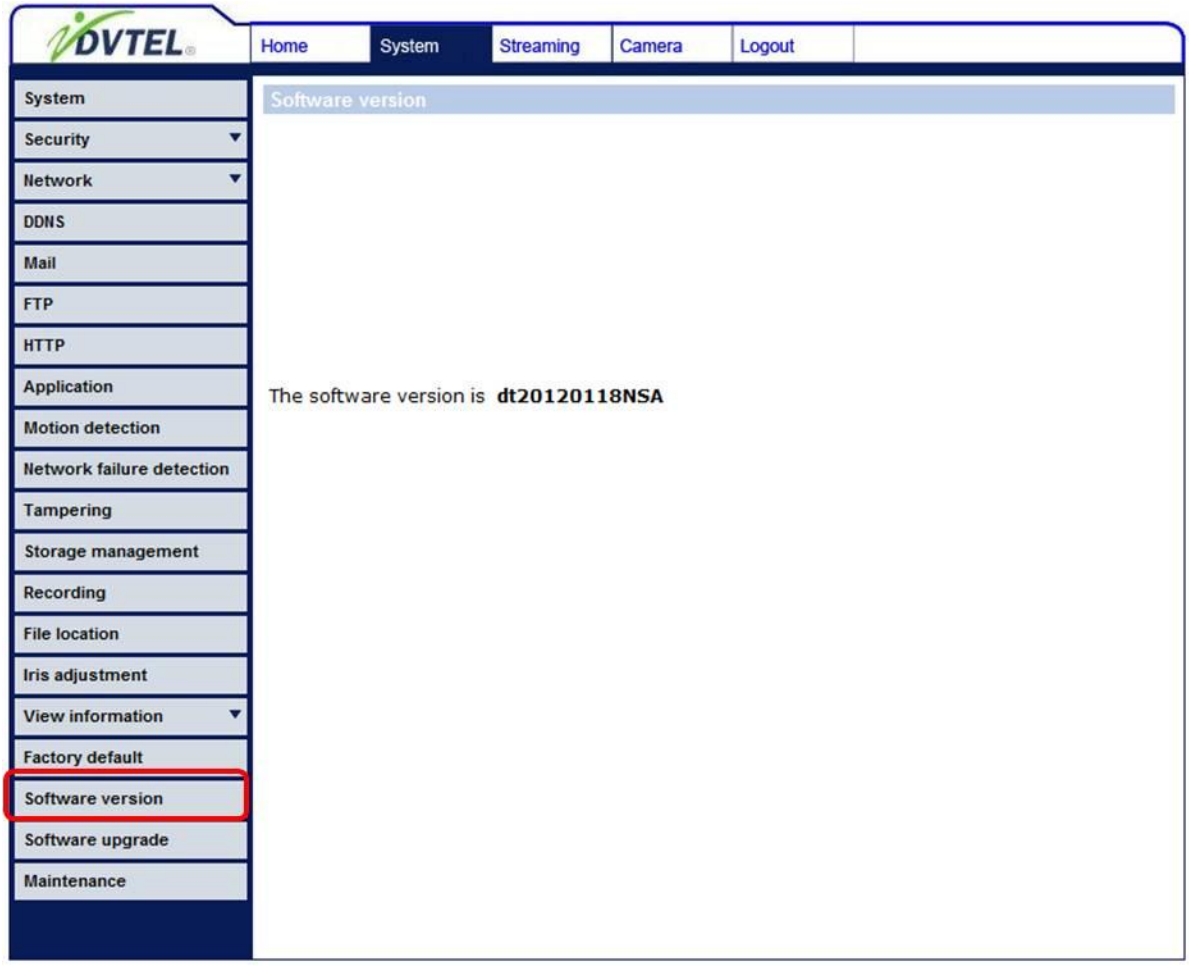


Reboot

Clicking on the "**Reboot**" button restarts the system without changing current settings.

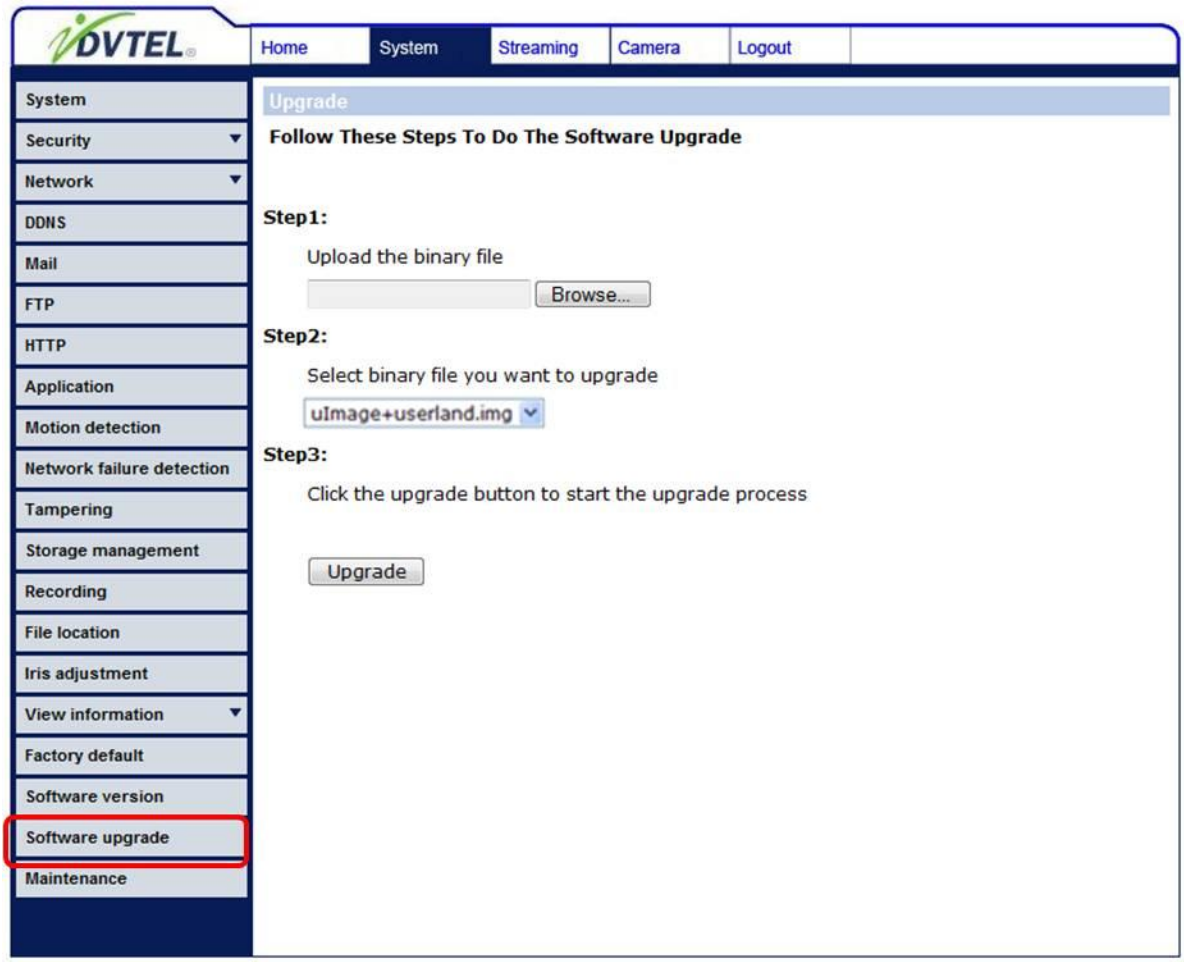
6.3.18 Software Version

The current software version is displayed in the software version page, which is shown below.



6.3.19 Software Upgrade

Software upgrade can be carried out in the "**Software Upgrade**" page, as shown below.

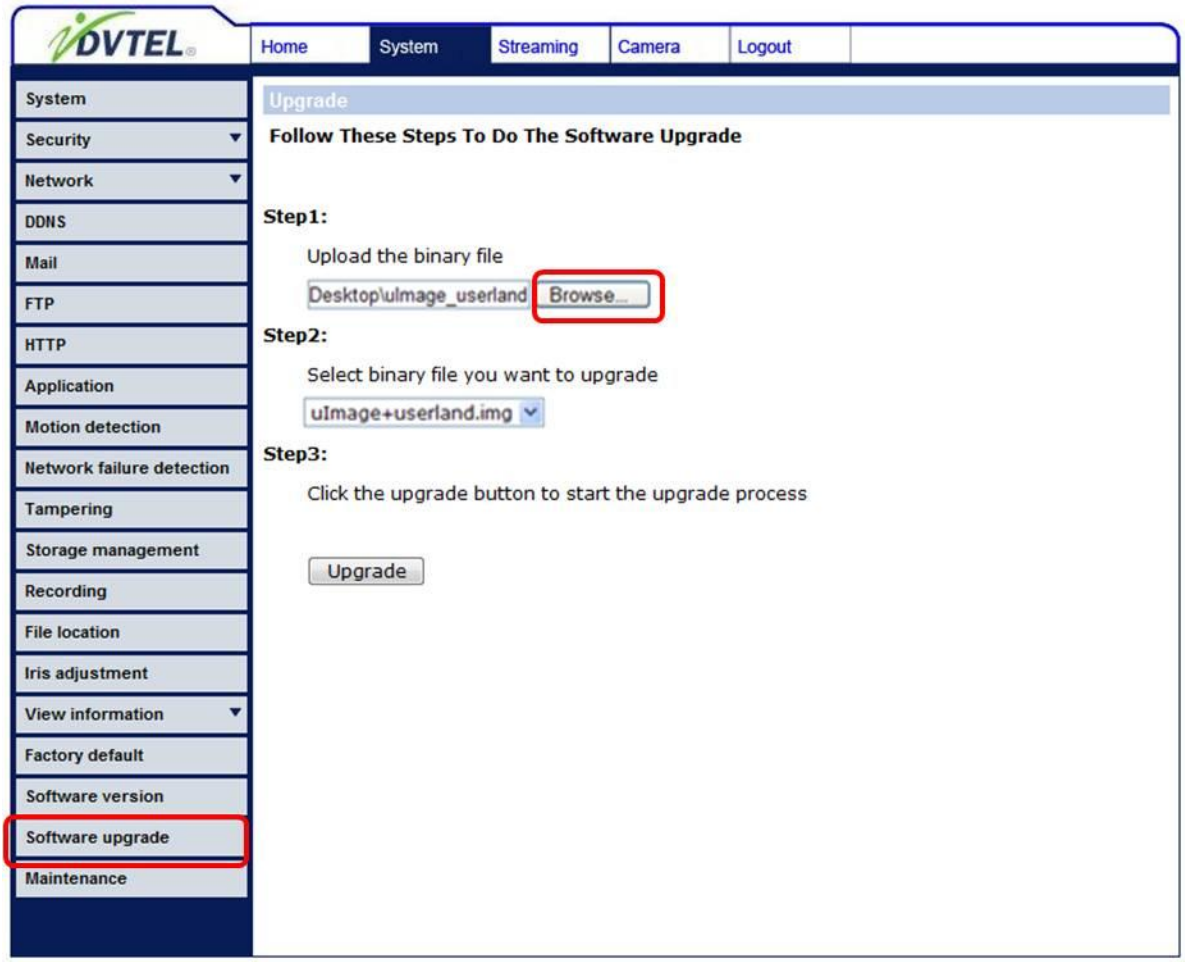


NOTE: Make sure the upgrade software file is available before carrying out software upgrade.

The procedure for software upgrade follows:

To upgrade the firmware:

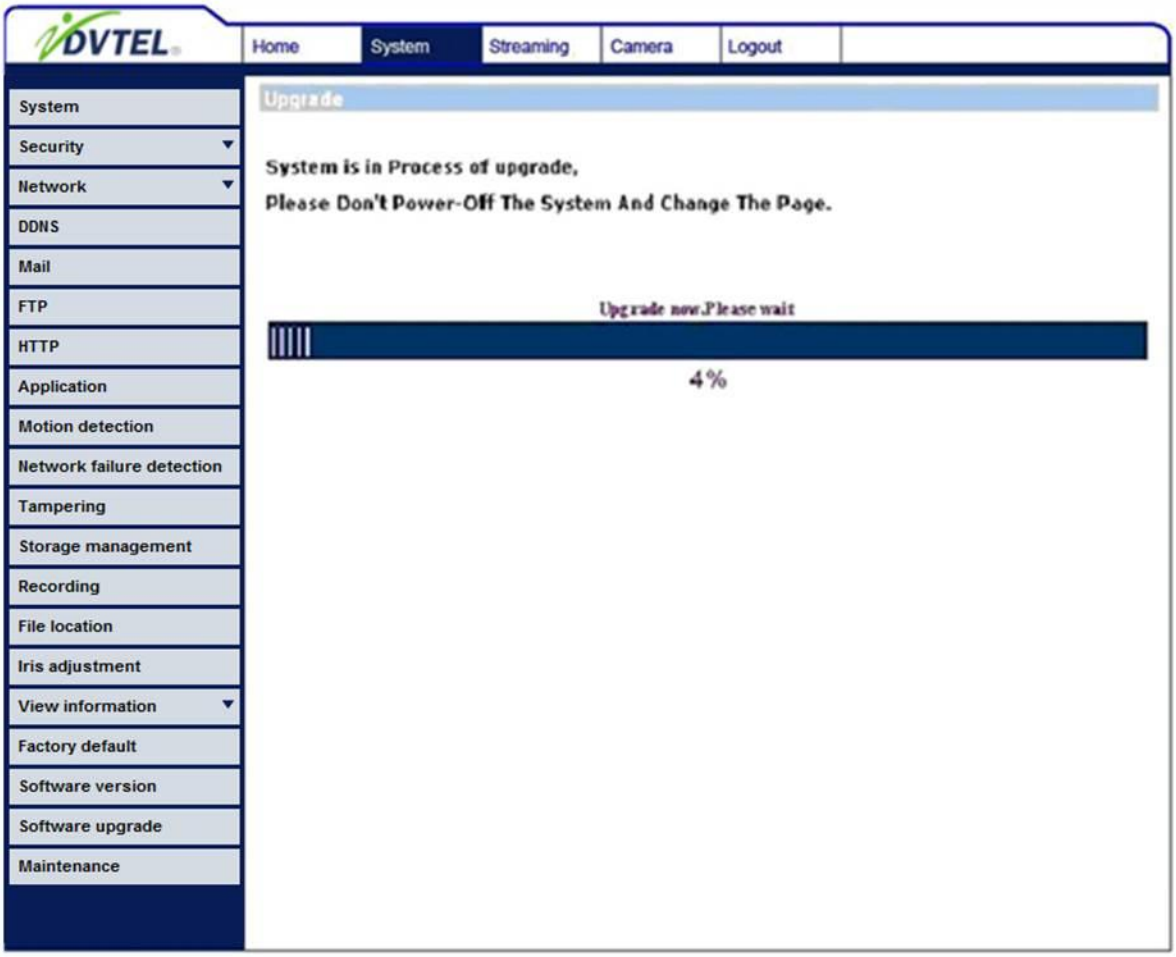
1.) Click "**Browse**" and select the binary file to be uploaded, for example, "**uImage_userland.img**".



NOTE: Do not change the upgrade file name or the system will fail to find the file.

2.) Pull down the upgrade binary file list and select the file you want to upgrade. In this case, select "**uImage+userland.img**".

3.) Press "**Upgrade**". The system will first check whether the upgrade file exists or not and then will begin to upload the upgrade file. Subsequently, the upgrade status bar will display on the page. When it reaches 100%, the upgrade process is finished. After the upgrade process is finished, the viewer returns to the Home page.



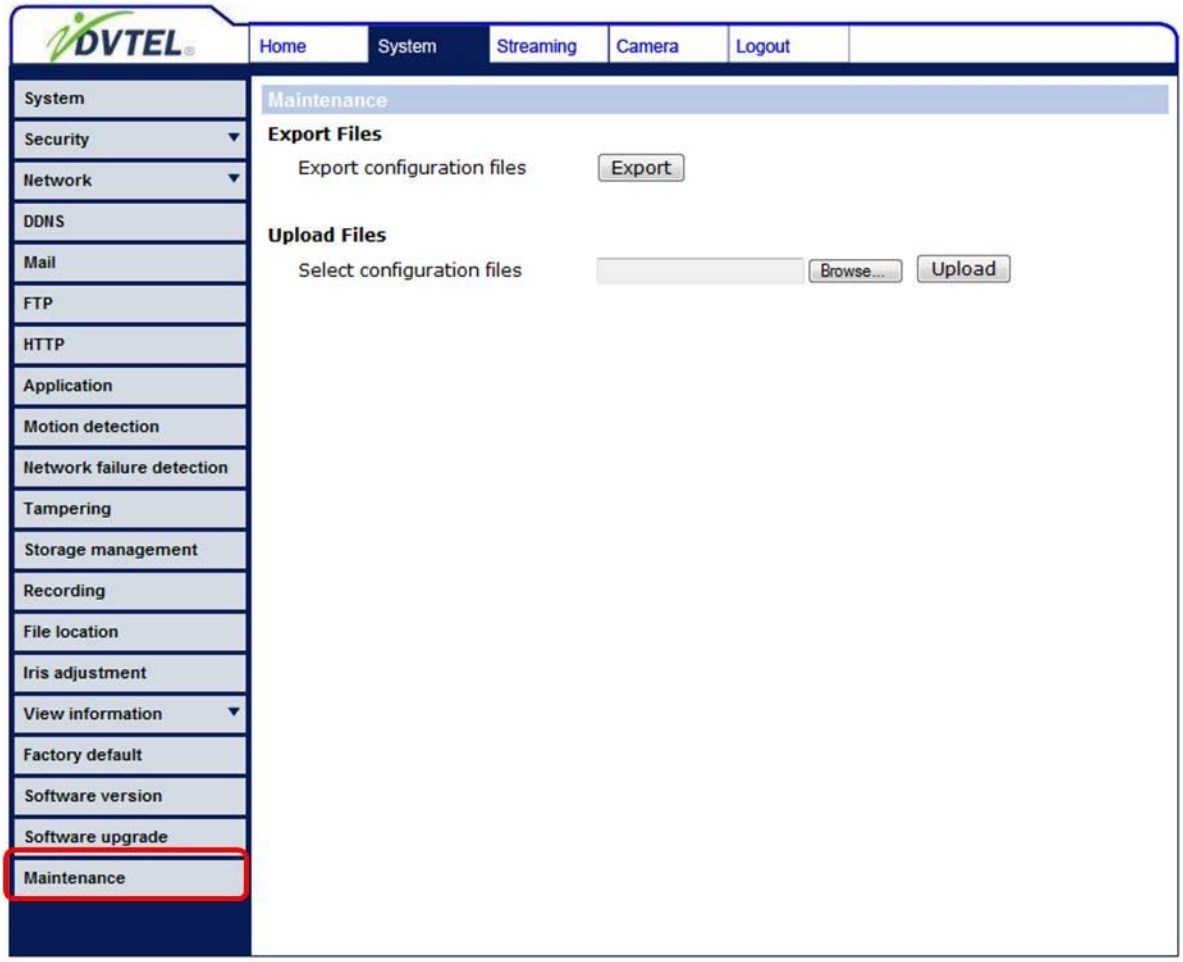
4.) Close the video browser.

5.) Click "**Control Panel**" and then double-click "**Add or Remove Programs**". In the "**Currently install programs**" list, select "**DCViewer**" and click the button "**Remove**" to uninstall the existing DC Viewer.

6.) Open a new web browser, re-login the camera, and then allow the automatic download of the DVTel Web Player (DV Viewer).

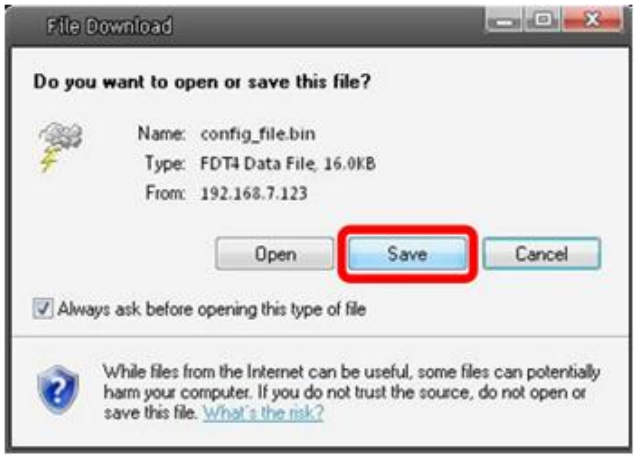
6.3.20 Maintenance

Users can export configuration files to a specified location and retrieve data by uploading an existing configuration file to the camera.



Export

Users can save the system settings by exporting the configuration file (.bin) to a specified location for future use. Press the "**Export**" button and the popup File Download window appears as shown below. Click "**Save**" and specify a desired location for saving the configuration file.


File Download
Do you want to open or save this file?
Name: config_file.bin
Type: FDT4 Data File, 16.0kB
From: 192.168.7.123
Open
Save
Cancel
Always ask before opening this type of file
While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What's the risk?

Upload

To copy an existing configuration file to the camera, first click on "**Browse**" to select the configuration file, and then press the "**Upload**" button for uploading.

6.4 Video and Audio Streaming Settings

Pressing the <**Streaming**> tab in the navigation bar at the top of the page displays the configurable video and audio selections in the sidebar. In **Streaming**, the Administrator can configure specific video resolution, video compression mode, video protocol, audio transmission mode, etc. Further details of these settings are specified in the following sections.

The following video resolutions are supported:

- MJPEG + H.264
- MJPEG only
- H.264 + H.264
- H.264 only

NOTE: MJPEG is not supported by Latitude.

Related Links

Video Resolution and Rotate Type

Video Compression

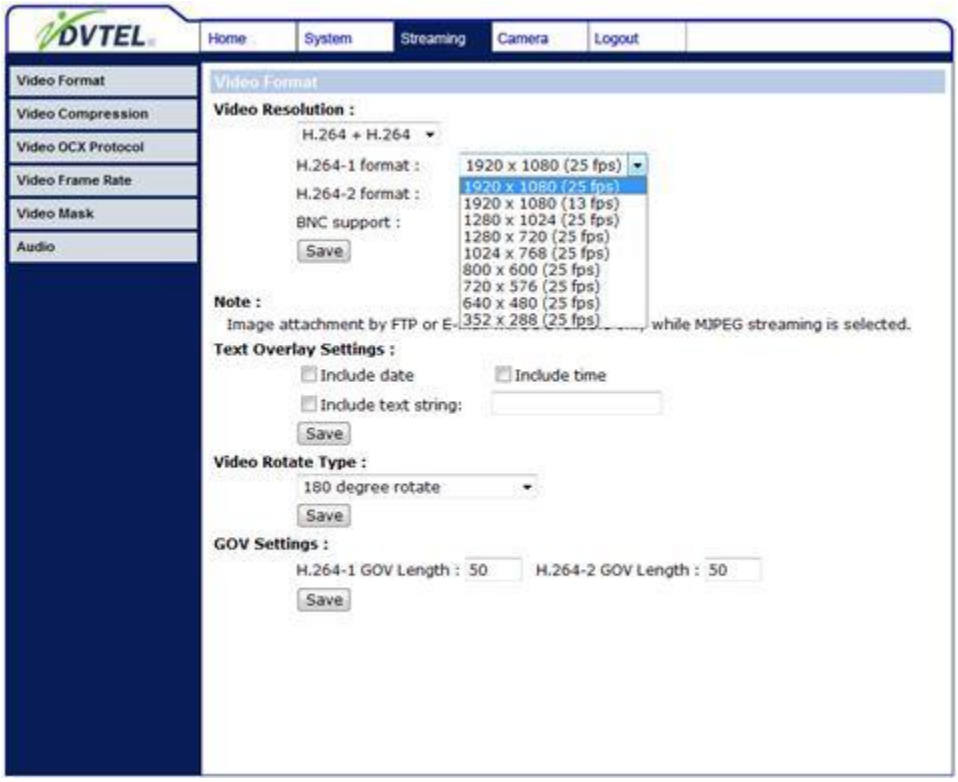
Video OCX Protocol

Video Frame Rate

Audio Mode and Bit Rate Settings

6.4.1 Video Resolution and Rotate Type

Different values are displayed and can be selected on the video format setting page for an NTSC or PAL TV system. The TV system is set on the sidebar of the <**Camera**> tab (see TV System). The video format setting page for a PAL TV system is shown below.



6.4.1.1 NTSC System Settings

Following are the video resolution settings for an NTSC TV system.

MJPEG + H.264 Video Resolution:

The following video resolution options are available:

H.264	MJPEG	BNC SUPPORT
1920 x 1080 (30 fps)	720 x 480 (30 fps)	√
	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
1920 x 1080 (15 fps)	1920 x 1080 (15 fps)	√
	1280 x 1024 (30 fps)	√
	1280 x 720 (30 fps)	√
	1024 x 768 (30 fps)	√
	800 x 600 (30 fps)	-
1280 x 1024 (30 fps)	1280 x 1024 (15 fps)	√
	1280 x 720 (30 fps)	-
	1024 x 768 (30 fps)	-
	800 x 600 (30 fps)	-
	720 x 480 (30 fps)	√
	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
1280 x 720 (30 fps)	1280 x 720 (30 fps)	√
	1024 x 768 (30 fps)	-
	800 x 600 (30 fps)	-
	720 x 480 (30 fps)	√
	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
1024 x 768 (30 fps)	1024 x 768 (30 fps)	√
	800 x 600 (30 fps)	-
	720 x 480 (30 fps)	√
	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
800 x 600 (30 fps)	800 x 600 (30 fps)	√
	720 x 480 (30 fps)	√
	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
720 x 480 (30 fps)	720 x 480 (30 fps)	√
	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
640 x 480 (30 fps)	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
352 x 240 (30 fps)	352 x 240 (30 fps)	-

NOTE: MJPEG is not supported by Latitude.

MJPEG-Only Video Resolution:

The following video resolution options are available:

MJPEG	BNC SUPPORT
1920 x 1080 (30 fps)	√
1280 x 1024 (30 fps)	√
1280 x 720 (30 fps)	√
1024 x 768 (30 fps)	√
800 x 600 (30 fps)	√
720 x 480 (30 fps)	√
640 x 480 (30 fps)	√
352 x 240 (30 fps)	-

NOTE: MJPEG is not supported by Latitude.

H.264 + H.264 Video Resolution:

The following video resolution options are available:

H.264-1	H.264-2	BNC SUPPORT
1920 x 1080 (30 fps)	720 x 480 (30 fps)	√
	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
1920 x 1080 (15 fps)	1920 x 1080 (15 fps)	√
	1280 x 1024 (30 fps)	√
	1280 x 720 (30 fps)	√
	1024 x 768 (30 fps)	√
	800 x 600 (30 fps)	-
1280 x 1024 (30 fps)	1280 x 1024 (15 fps)	√
	1280 x 720 (30 fps)	-
	1024 x 768 (30 fps)	-
	800 x 600 (30 fps)	-
	720 x 480 (30 fps)	√
	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
1280 x 720 (30 fps)	1280 x 720 (30 fps)	√
	1024 x 768 (30 fps)	-
	800 x 600 (30 fps)	-
	720 x 480 (30 fps)	√
	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
1024 x 768 (30 fps)	1024 x 768 (30 fps)	√
	800 x 600 (30 fps)	-
	720 x 480 (30 fps)	√
	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
800 x 600 (30 fps)	800 x 600 (30 fps)	√
	720 x 480 (30 fps)	√
	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
720 x 480 (30 fps)	720 x 480 (30 fps)	√

	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
640 x 480 (30 fps)	640 x 480 (30 fps)	√
	352 x 240 (30 fps)	√
352 x 240 (30 fps)	352 x 240 (30 fps)	-

H.264 Only Video Resolution:

The following video resolution options are available:

H.264	BNC SUPPORT
1920 x 1080 (30 fps)	√
1280 x 1024 (30 fps)	√
1280 x 720 (30 fps)	√
1024 x 768 (30 fps)	√
800 x 600 (30 fps)	√
720 x 480 (30 fps)	√
640 x 480 (30 fps)	√
352 x 240 (30 fps)	-

Click "**Save**" to confirm the settings.

6.4.1.2 PAL System Settings

Following are the video resolution settings for a PAL TV system.

MJPEG + H.264 Video Resolution:

The following video resolution options are available:

H.264	MJPEG	BNC SUPPORT
1920 x 1080 (25 fps)	720 x 576 (25 fps)	√
	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
1920 x 1080 (13 fps)	1920 x 1080 (13 fps)	√
	1280 x 1024 (25 fps)	√
	1280 x 720 (25 fps)	√
	1024 x 768 (25 fps)	√
	800 x 600 (25 fps)	-
1280 x 1024 (25 fps)	1280 x 1024 (13 fps)	√
	1280 x 720 (25 fps)	-
	1024 x 768 (25 fps)	-
	800 x 600 (25 fps)	-
	720 x 576 (25 fps)	√
	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
1280 x 720 (25 fps)	1280 x 720 (25 fps)	√
	1024 x 768 (25 fps)	-
	800 x 600 (25 fps)	-
	720 x 576 (25 fps)	√
	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
1024 x 768 (25 fps)	1024 x 768 (25 fps)	√
	800 x 600 (25 fps)	-
	720 x 576 (25 fps)	√
	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
800 x 600 (25 fps)	800 x 600 (25 fps)	√
	720 x 576 (25 fps)	√
	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
720 x 576 (25 fps)	720 x 576 (25 fps)	√
	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
640 x 480 (25 fps)	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
352 x 288 (25 fps)	352 x 288 (25 fps)	-

NOTE: MJPEG is not supported by Latitude.

MJPEG-Only Video Resolution:

The following video resolution options are available:

MJPEG	BNC SUPPORT
1920 x 1080 (25 fps)	√
1280 x 1024 (25 fps)	√
1280 x 720 (25 fps)	√
1024 x 768 (25 fps)	√
800 x 600 (25 fps)	√
720 x 576 (25 fps)	√
640 x 480 (25 fps)	√
352 x 288 (25 fps)	-

NOTE: MJPEG is not supported by Latitude.

H.264 + H.264 Video Resolution:

The following video resolution options are available:

H.264-1	H.264-2	BNC SUPPORT
1920 x 1080 (25 fps)	1920 x 1080 (25 fps)	√
	1920 x 1080 (13 fps)	√
	1280 x 1024 (25 fps)	√
	1280 x 720 (25 fps)	√
	1024 x 768 (25 fps)	√
	800 x 600 (25 fps)	-
	720 x 480 (25 fps)	√
	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
1920 x 1080 (13 fps)	1920 x 1080 (13 fps)	√
	1280 x 1024 (25 fps)	√
	1280 x 720 (25 fps)	√
	1024 x 768 (25 fps)	√
	800 x 600 (25 fps)	-
1280 x 1024 (25 fps)	1280 x 1024 (13 fps)	√
	1280 x 720 (25 fps)	-
	1024 x 768 (25 fps)	-
	800 x 600 (25 fps)	-
	720 x 576 (25 fps)	√
	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
1280 x 720 (25 fps)	1280 x 720 (25 fps)	√
	1024 x 768 (25 fps)	-
	800 x 600 (25 fps)	-
	720 x 576 (25 fps)	√
	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
1024 x 768 (25 fps)	1024 x 768 (25 fps)	√
	800 x 600 (25 fps)	-
	720 x 576 (25 fps)	√
	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
800 x 600 (25 fps)	800 x 600 (25 fps)	√
	720 x 576 (25 fps)	√
	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
720 x 576 (25 fps)	720 x 576 (25 fps)	√
	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
640 x 480 (25 fps)	640 x 480 (25 fps)	√
	352 x 288 (25 fps)	√
352 x 288 (25 fps)	352 x 288 (25 fps)	-

H.264 Only Video Resolution:

The following video resolution options are available:

H.264	BNC SUPPORT
1920 x 1080 (25 fps)	√
1280 x 1024 (25 fps)	√
1280 x 720 (25 fps)	√
1024 x 768 (25 fps)	√
800 x 600 (25 fps)	√
720 x 576 (25 fps)	√
640 x 480 (25 fps)	√
352 x 288 (25 fps)	-

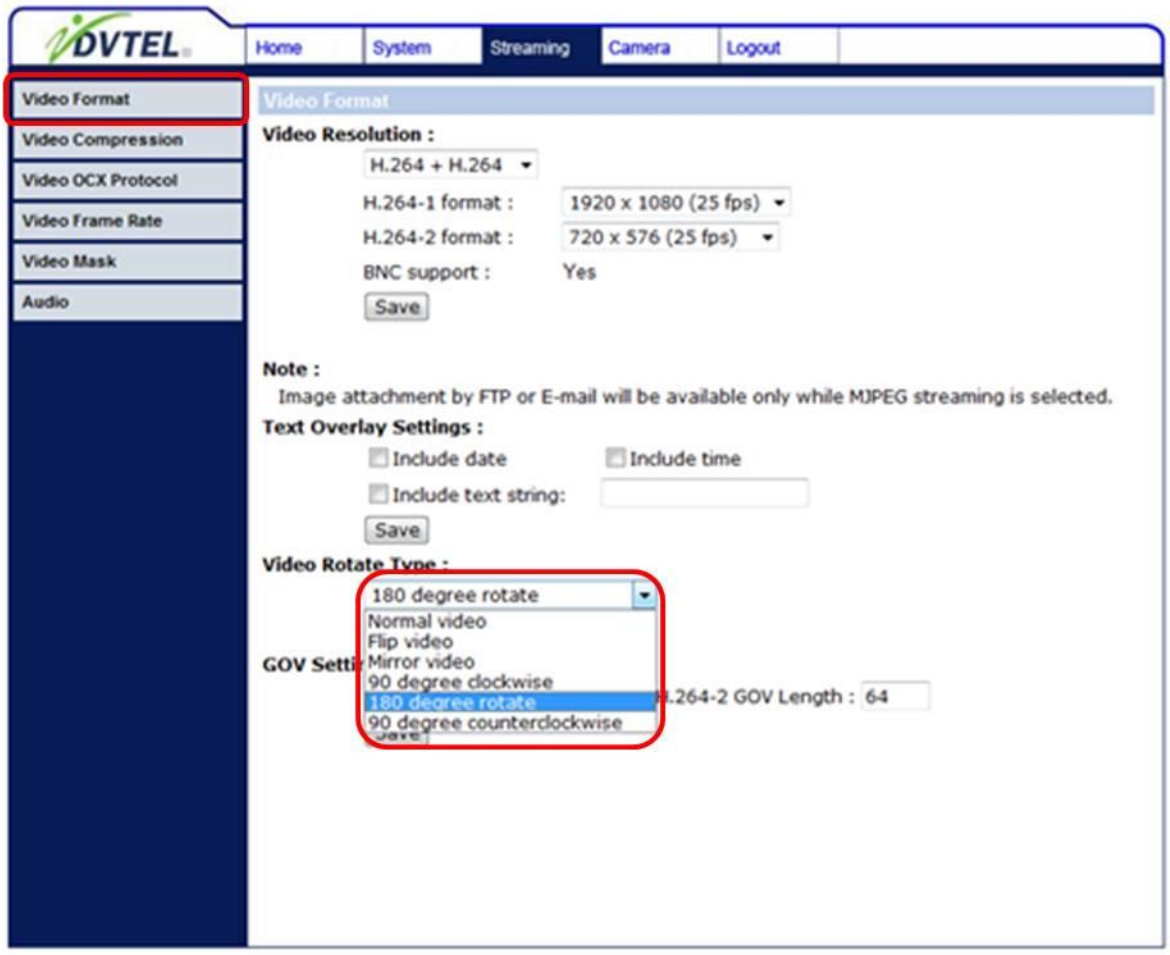
Click "**Save**" to confirm the settings.

Text Overlay Settings

Users can select the items to display data including date/time/text on the Live Video Pane. The maximum length of the string is 20 alphanumeric characters. Click "**Save**" to confirm the Text Overlay setting.

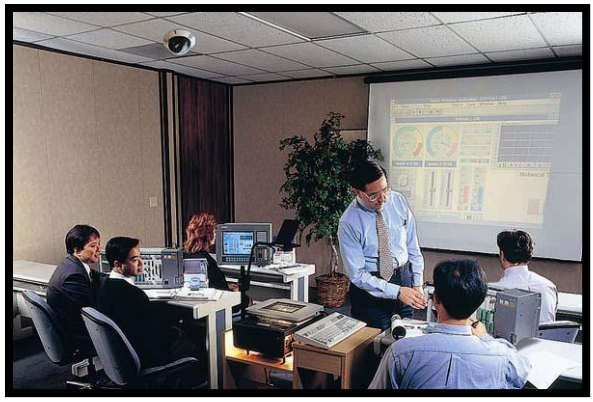
Video Rotate Type

Users can change video display type if necessary. Selectable video rotate types include Normal video, Flip video, Mirror video, 90 degree clockwise, 180 degree rotate, and 90 degree counterclockwise. Differences among these types are illustrated below. The following drop-down menu appears when selecting this option.



Suppose the displayed image of the camera is shown as follows.

To rotate the image vertically, for instance, users can select "**Flip video**". Then the displayed image is reversed as shown below.



Following are descriptions of different video rotate types.

- **Normal video**
  If "**Normal video**" is selected, the image appears as it is viewed.
- **Flip video**
  If "**Flip video**" is selected, the image is rotated vertically.
- **Mirror video**
  If "**Mirror video**" is selected, the image is rotated horizontally.
- **90 degree clockwise**
  Selecting "**90 degree clockwise**" inverts the image 90° clockwise (to the right).
- **180 degree rotate**
  Selecting "**180 degree rotate**" inverts the image 180° counter-clockwise (to the left).

- **90 degree counterclockwise**
  Selecting "**90 degree counterclockwise**" inverts the image 90° counter-clockwise (to the left).

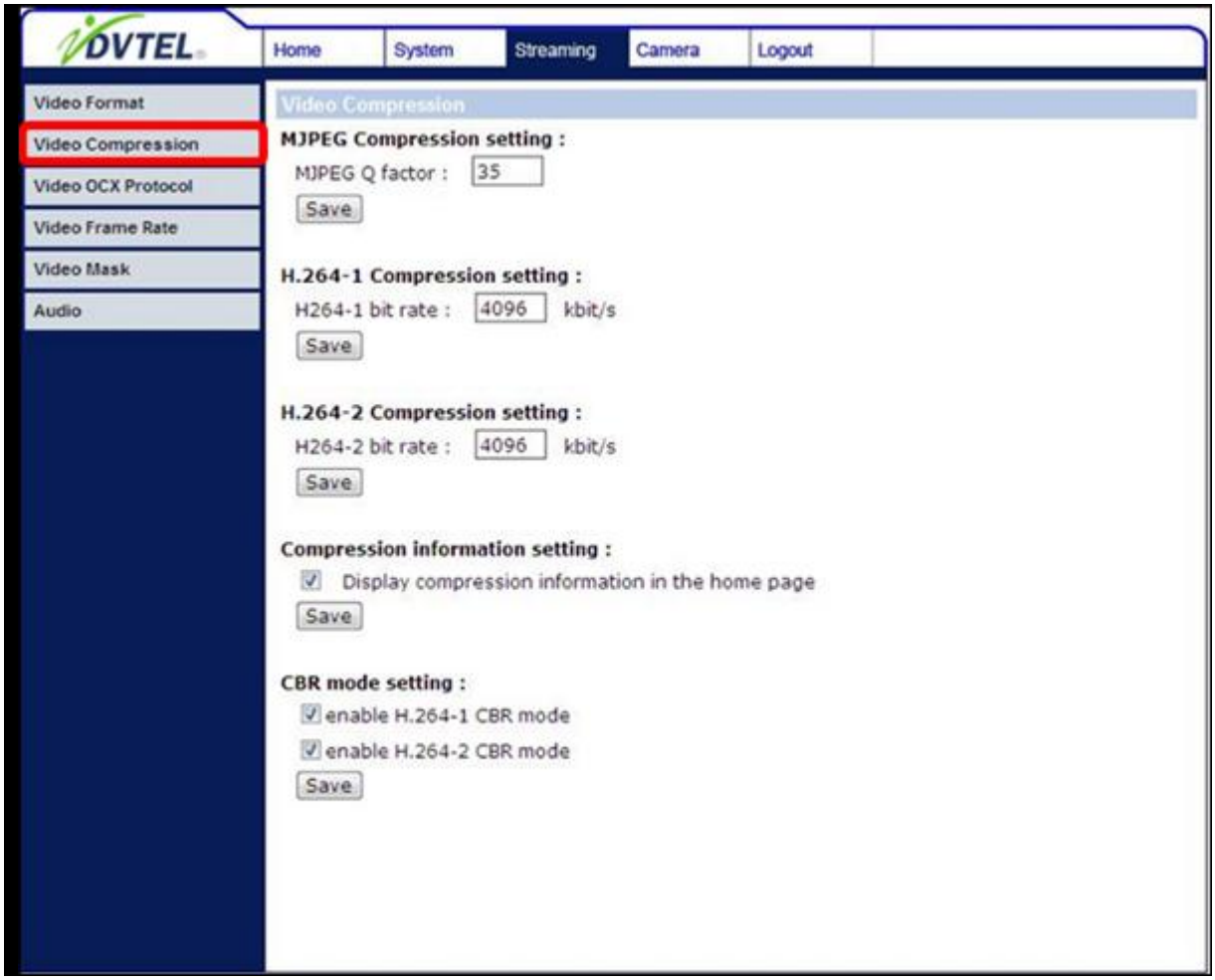
Click "**Save**" to confirm the setting.

GOV Settings

Users can set the GOV length to determine the frame structure (I-frames and P-frames) in a video stream for saving bandwidth. The setting range is from 2 to 64. A longer GOV means decreasing the frequency of I-frames. Click "**Save**" to confirm the GOV setting.

6.4.2 Video Compression

Users can specify the values for MJPEG/H.264 compression mode in the video compression page according to the application. See the figure below. Note that MJPEG is not supported by Latitude.



MJPEG Q (Quality) factor

A higher value implies higher bit rates and higher visual quality. The default setting of MJPEG Q factor is 35; the setting range is from 1 to 70. Click "**Save**" to confirm the setting.

NOTE: MJPEG is not supported by Latitude.

H.264-1/H.264-2 bit rate

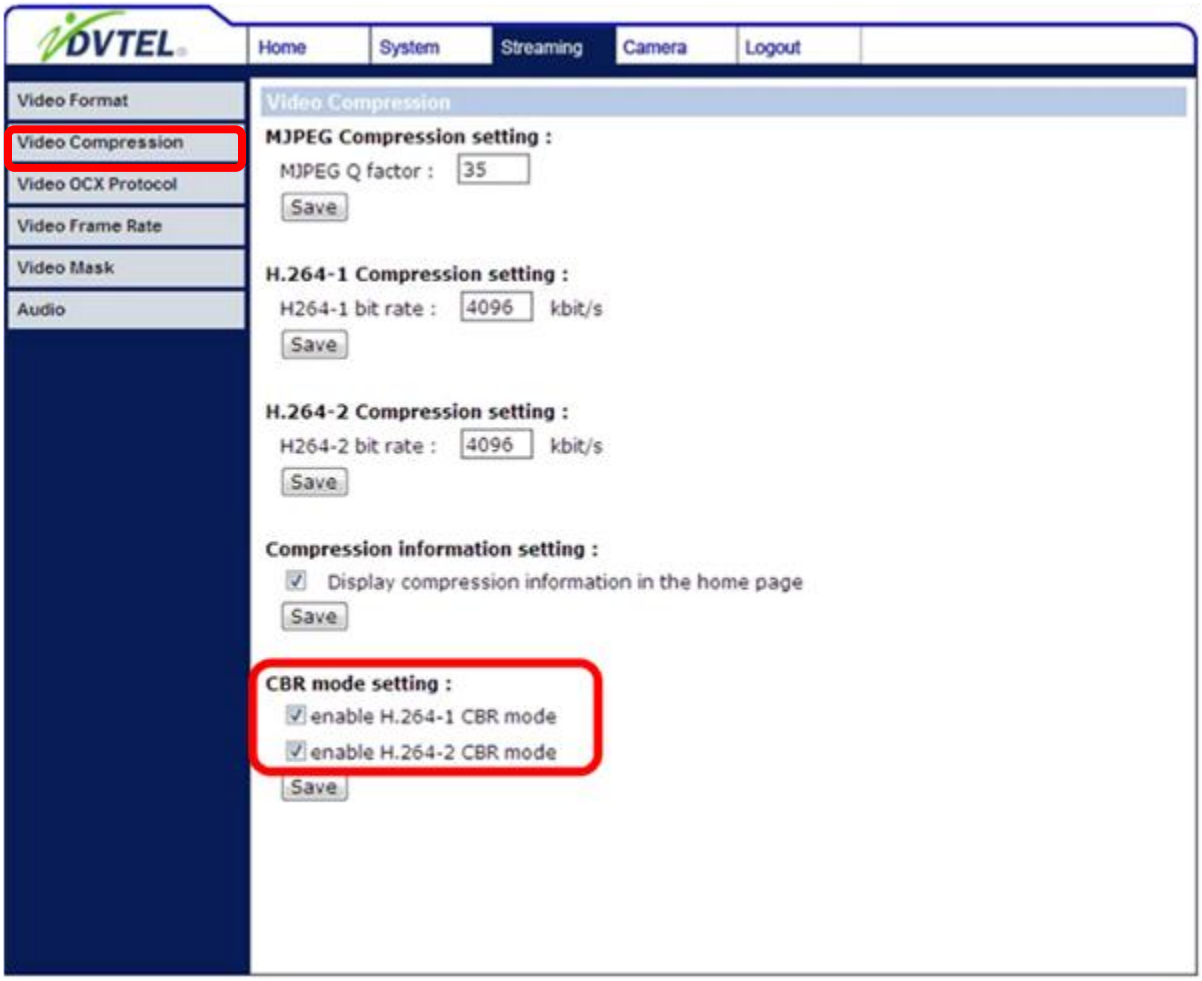
The default setting of H.264-1/H.264-2 is 4096 kbps; the setting range is from 64 to 8192 kbps. Click "**Save**" to confirm the setting.

Display Compression Information

Users can also decide whether to display compression information on the Home page. Click "**Save**" to confirm the setting.

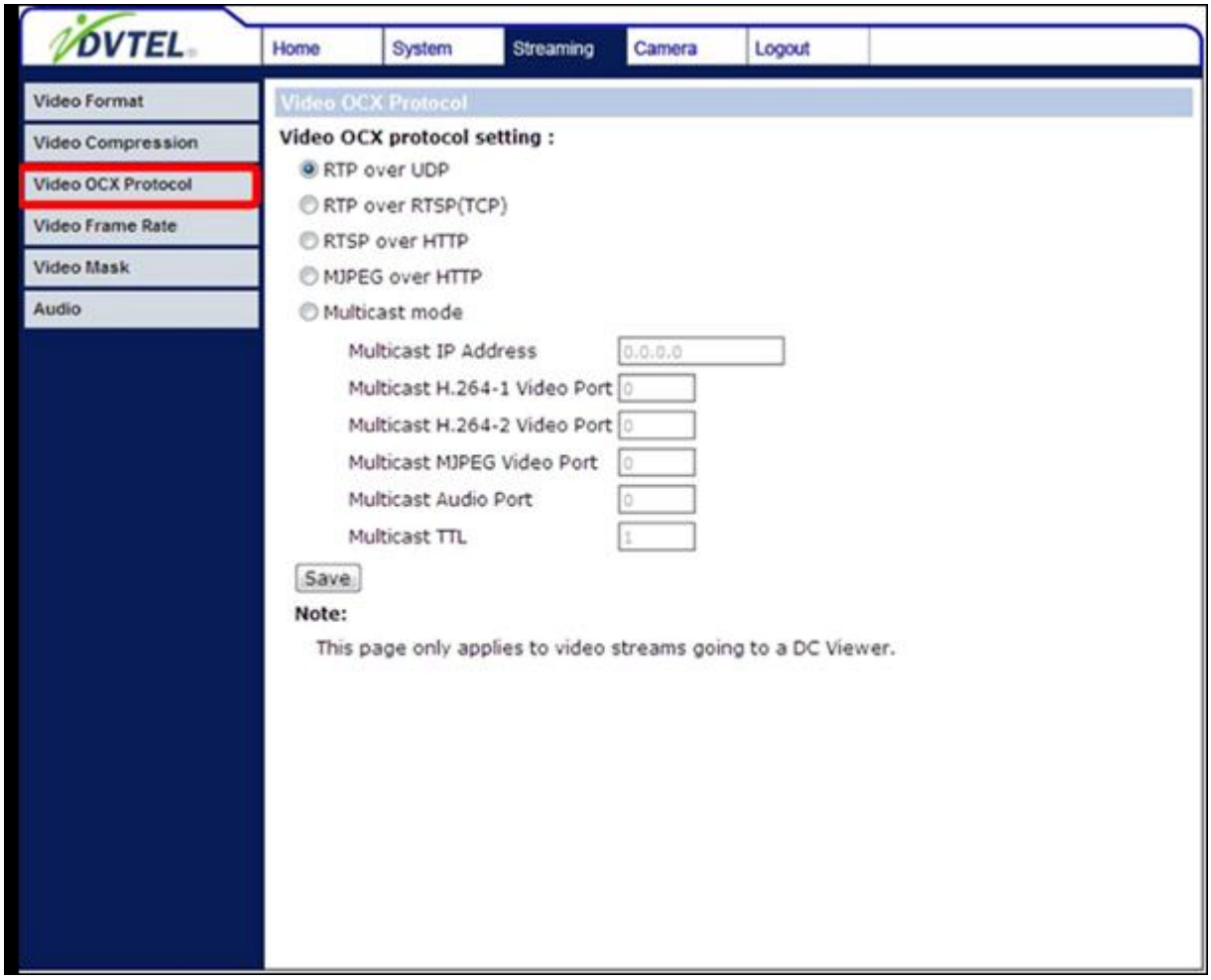
CBR Mode Setting

The CBR (Constant Bit Rate) mode can be the preferred bit rate mode if the bandwidth available is limited. It is important to take image quality into account when deciding to use CBR mode. To operate the camera in Variable Bit Rate (VBR) mode, uncheck the CBR checkbox. Click "**Save**" to confirm the setting.


DVTEL
Home
System
Streaming
Camera
Logout
Video Format
Video Compression
Video OCX Protocol
Video Frame Rate
Video Mask
Audio
Video Compression
MJPEG Compression setting :
MJPEG Q factor : 35
Save
H.264-1 Compression setting :
H264-1 bit rate : 4096 kbit/s
Save
H.264-2 Compression setting :
H264-2 bit rate : 4096 kbit/s
Save
Compression information setting :
Display compression information in the home page
Save
CBR mode setting :
enable H.264-1 CBR mode
enable H.264-2 CBR mode
Save

6.4.3 Video OCX Protocol

In the Video OCX protocol setting page, users can select RTP over UDP, RTP over TCP, RTSP over HTTP or MJPEG* over HTTP, for streaming media over the network. In the case of multicast networking, users can select the Multicast mode. The page is shown as follows.



Video OCX protocol setting options include:

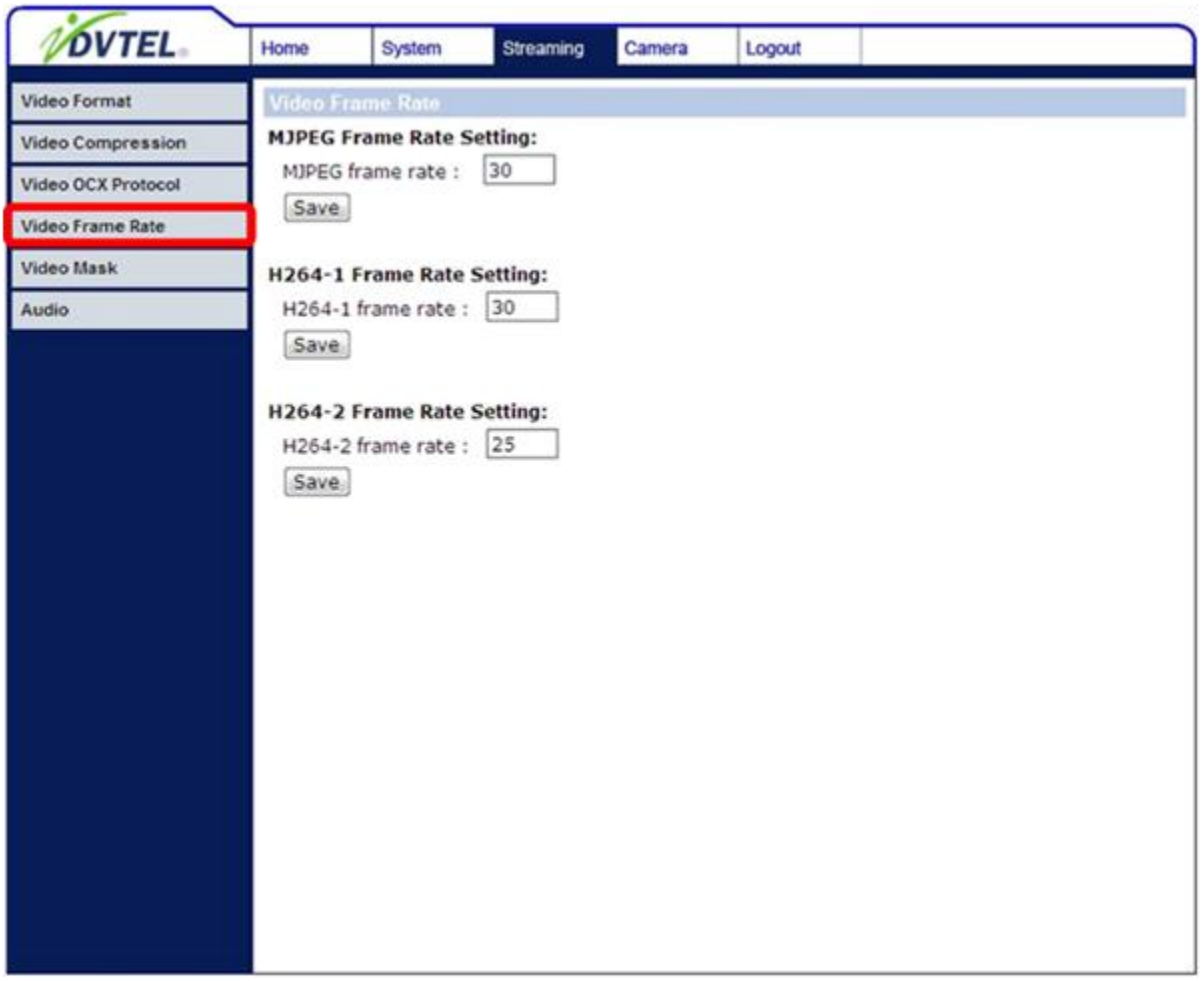
- RTP over UDP
- RTP over RTSP(TCP)
- RTSP over HTTP
- MJPEG* over HTTP
- Multicast Mode
  Enter all required data, including multicast IP address, H.264 video port, MJPEG video port, audio port, and TTL into each field.

NOTE: MJPEG is not supported by Latitude.

Click **"Save"** to confirm the settings.

6.4.4 Video Frame Rate

Video frame rate is for setting the frames per second (fps) if necessary. The setting page is shown as below.



MJPEG/H.264-1/H.264-2 Frame Rate

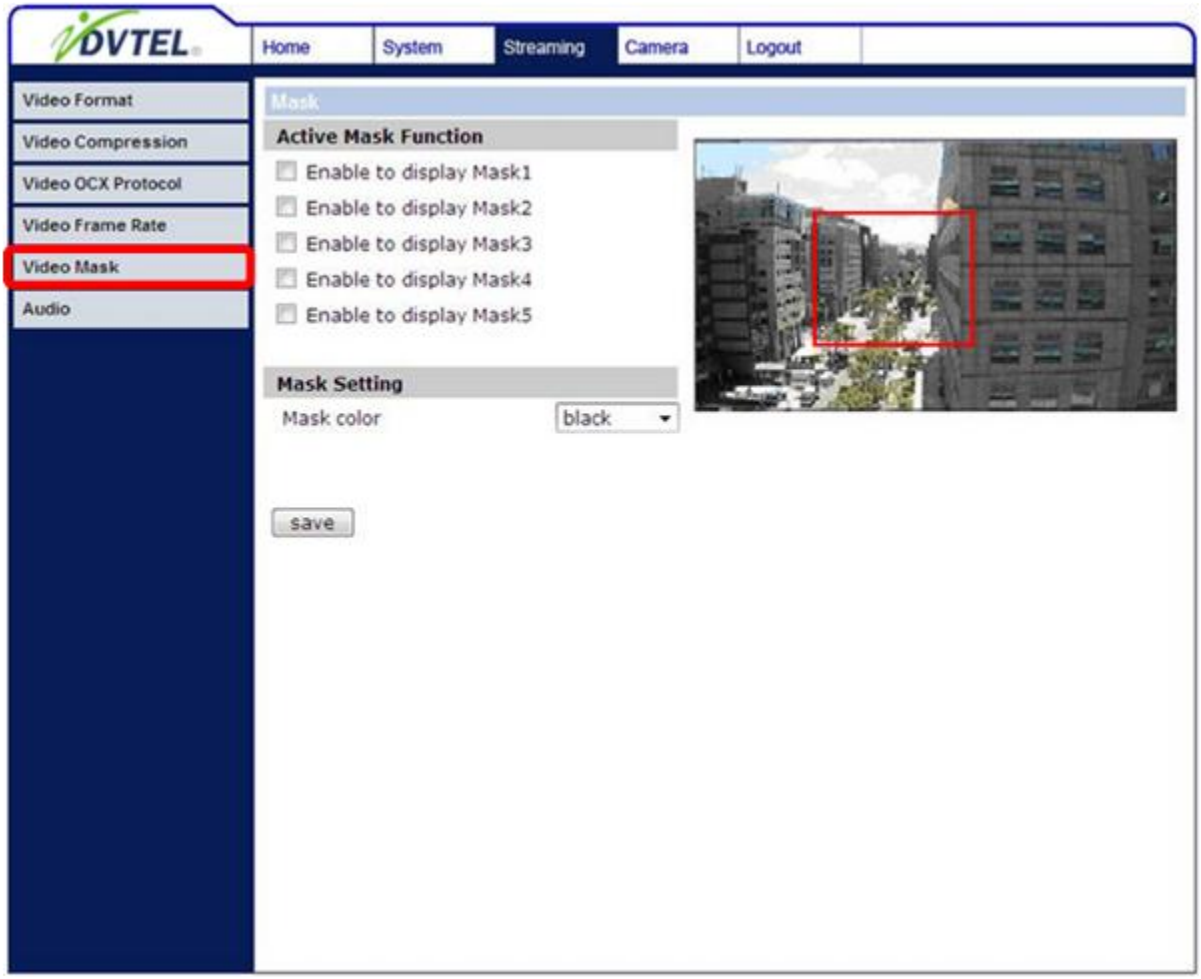
The default setting of MJPEG Frame Rate is 30 fps (NTSC) or 25 fps (PAL). The setting range for H-264-1 in NTSC is from 1 to 30 and 1 to 30 in PAL. The setting range for H-264-2 is from 1 to 15 in NTSC and 1 to 13 in PAL. Click "**Save**" to confirm the settings.

NOTE: MJPEG is not supported by Latitude.

NOTE: A lower frame rate decreases video smoothness.

Video Mask

The Video Mask function enables selection of up to five active masks and selection of mask color.



Active Mask Function

- **Add a Mask**
  Upon checking a Video Mask checkbox, a red frame appears in the Live Video pane on the right side of the screen. Use the mouse to adjust the mask's size and place it in the target zone.

  NOTE: It is suggested to set the Video Mask twice as large as the object it covers.

- **Cancel a Mask**
  Uncheck the checkbox of the Video Mask meant to be deleted. The selected mask immediately disappears from the Live Video Pane.

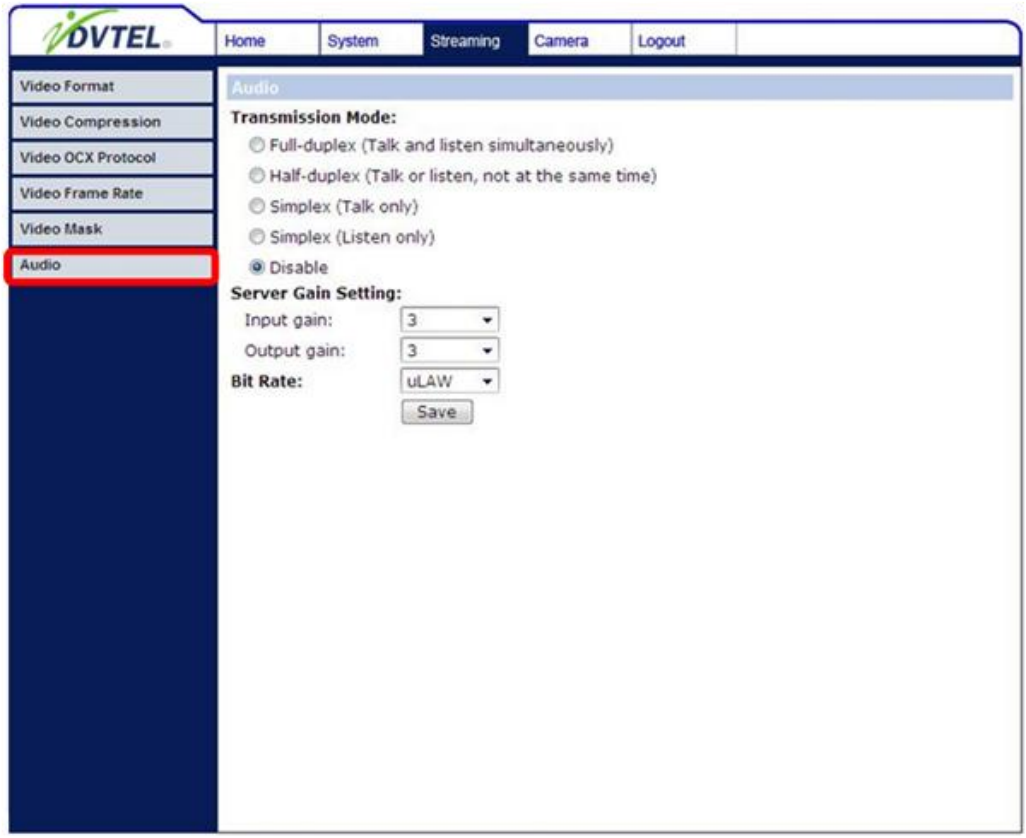
Mask Setting

- **Mask color**
  The selections of Mask color include red, black, white, yellow, green, blue, cyan, and magenta.

Click "**Save**" to confirm the settings.

6.4.5 Audio Mode and Bit Rate Settings

The audio setting page is show below. In the Audio page, the Administrator can select one transmission mode and audio bit rate.



Transmission Mode

- **Full-duplex (Talk and listen simultaneously)**
  In the Full-duplex mode, the local and remote sites can communicate with each other simultaneously, i.e. both sites can speak and be heard at the same time.
- **Half-duplex (Talk or listen not at the same time)**
  In the Half-duplex mode, the local/remote site can only talk or listen to the other site at one time.
- **Simplex (Talk only)**
  In the Talk only Simplex mode, the local/remote site can only talk to the other site.
- **Simplex (Listen only)**
  In the Listen only Simplex mode, the local/remote site can only listen to the other site.
- **Disable**
  Select this option to turn off the audio transmission function.

Server Gain Setting

Set the audio input/output gain levels for sound amplification. The audio gain values are adjustable from 1 to 6. The sound will be turned off if the audio gain is set to "**Mute**".

Bit Rate

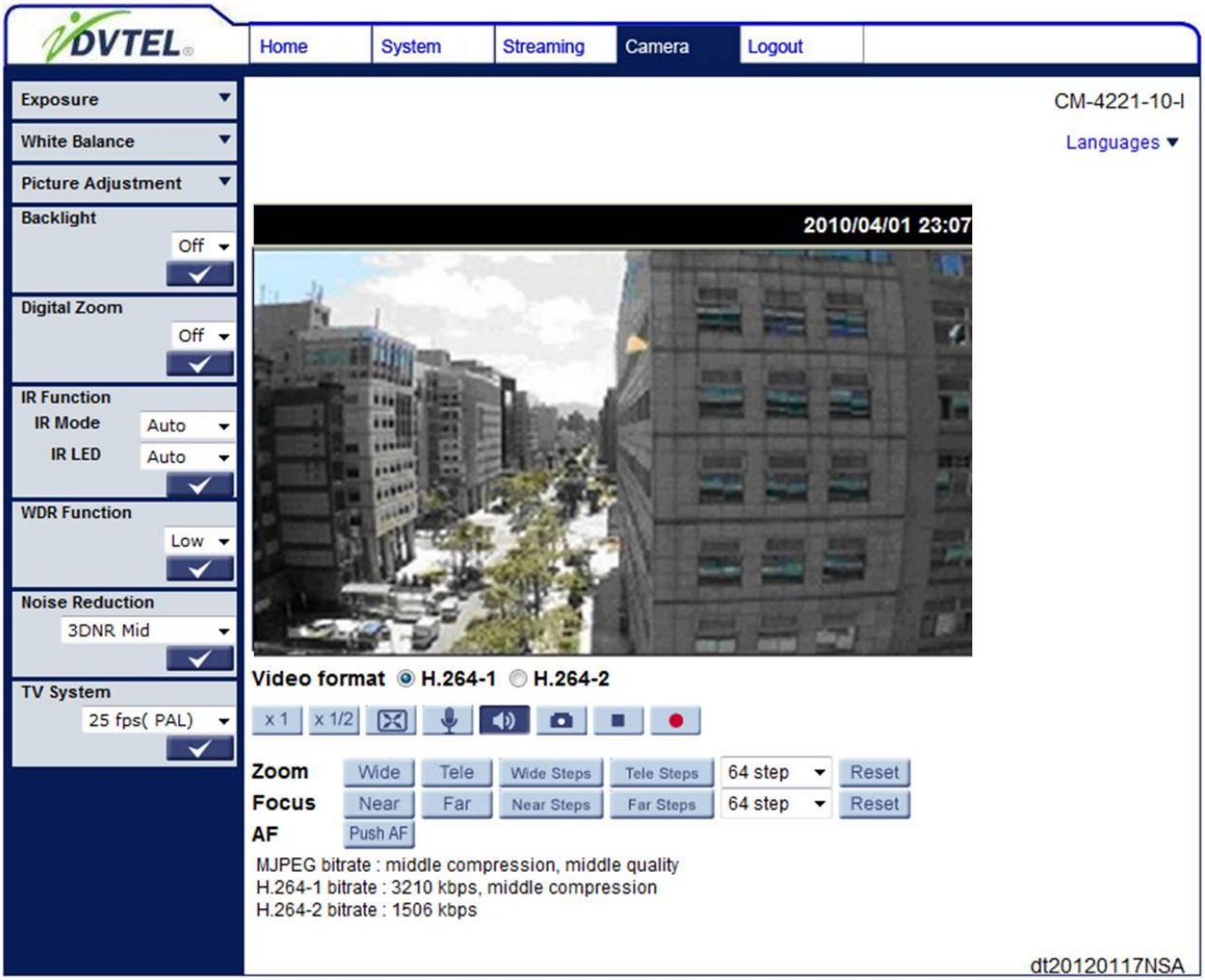
Selectable audio transmission bit rate include 16 kbps (G.726), 24 kbps (G.726), 32 kbps (G.726), 40 kbps (G.726), uLAW (G.711) and ALAW (G.711). Both uLAW and ALAW signify 64 kbps, but in different compression formats. A higher bit rate enables higher audio quality, but requires higher bandwidth.

NOTE: Latitude does **not** support G.726 bit rates.

Click "**Save**" to confirm the settings.

6.5 Camera Settings

The figure below is the <**Camera**> configuration page. Details of each parameter setting are described in the following subsections.



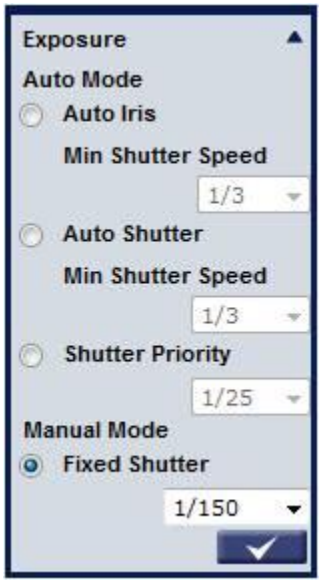
Related Links

- Exposure Setting
- White Balance Setting
- Picture Adjustment
- Backlight
- Digital Zoom
- IR Function

- WDR Function
- Noise Reduction
- TV System

6.5.1 Exposure Setting

The Exposure pull-down menu is shown as follows:



The exposure is the amount of light received by the image sensor and is determined by the width of the lens diaphragm opening, the amount of exposure by the sensor (shutter speed), and other exposure parameters. With this setting, users can define how the Auto Exposure function works.

There are two exposure modes: Auto Mode and Manual Mode.

Auto Mode

Within Auto Modes, there are three settings:

- **Auto Iris Min Shutter Speed**
  When selecting this mode, the shutter is completely open and exposure priority is given to the auto iris. Shutter speed and AGC circuit function automatically in cooperating with the iris to get consistent exposure output.
    - In PAL systems, the minimum shutter speed is selectable in steps of 1/25/, 1/12, 1/6, 1/3, and 1/1.5 seconds.
    - In NTSC systems, the minimum shutter speed is selectable in steps of 1/30, 1/15, 1/8, ¼, ½, and one second.

- **Auto Shutter Min Shutter Speed**
  When selecting this mode, the camera's shutter speed works automatically to get consistent video output level. Users can select a suitable shutter speed according to the environmental luminance.
    - In PAL systems, the shutter speed is selectable in 13 steps from 1/425 to 1/1.5 seconds.
    - In NTSC systems, the shutter speed is selectable in 14 steps from 1/500 to one second.
- **Shutter Priority**
  When selecting this mode, a fixed exposure is set, while other parameters can change.
    - In PAL systems, select from 9 settings between 1/425 to 1/25 seconds.
    - In NTSC systems, select from 9 settings between 1/500 to 1/30 seconds.

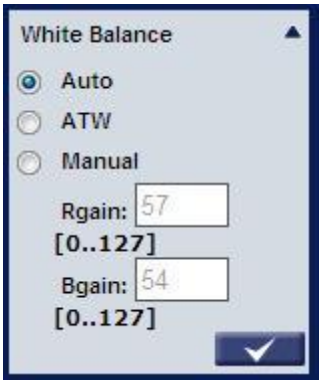
Manual Mode (Fixed Shutter)

Manual Mode opens the iris completely with a fixed gain. Users can select a suitable shutter speed according to the environmental luminance. The fixed shutter speed is selected from the drop-down menu.

- In PAL systems, the fixed shutter speed is selectable in 18 steps between 1/10,000 to 1/1.5 seconds.
- In NTSC systems, the fixed shutter speed is selectable in 19 steps between 1/10,000 to one second.

6.5.2 White Balance Setting

The White Balance pull-down menu is as follows:



A camera needs to find a reference color temperature as a way of measuring the quality of a light source for calculating all other colors. The unit for measuring this ratio is in Kelvin (K) degrees. Users can select one of the White Balance Control modes according to the operating

environment. The following table shows the color temperature of some light sources for reference.

Light Sources	Color Temperature in K
Cloudy Sky	6,000 to 8,000
Noon Sun and Clear Sky	6,500
Household Lighting	2,500 to 3,000
75-watt Bulb	2,820
Candle Flame	1,200 to 1,500

- **Auto Mode**
  The Auto Balance White mode is suitable for an environment with a light source color temperature in the range of roughly 2,700 ~ 8,000K.
- **ATW Mode (Auto Tracking White Balance)**
  The Auto Tracking White Balance function automatically adjusts the white balance in a scene while temperature color is changing. The ATW Mode is suitable for an environment with a light source color temperature in the range of roughly 2450 ~ 10,500K.
- **Manual Mode**
  In this mode, users can manually change the White Balance value. Users can select a number between 0 ~127 of "Rgain/Bgain" to increase the red/blue luminance on the Live Video pane. Press <√> to confirm the new setting.

6.5.3 Picture Adjustment

The picture adjustment pane enables you to set five picture settings: brightness, sharpness, contrast, saturation, and hue.

- **Brightness**
  Users can adjust the image's brightness by adjusting this parameter. Select from the range between -12 to +13. To increase video brightness, select a higher number. Press <√> to confirm the new setting.
- **Sharpness**
  Increasing the sharpness level can make the image look sharper, especially enhancing the object's edge. Select from the range between 0 to +15. Press <√> to confirm the new setting.
- **Contrast**
  Camera image contrast level is adjustable. Select from the range between -6 to +19. Press <√> to confirm the new setting.
- **Saturation**
  Camera image saturation level is adjustable. Select from the range between -6 to +19. Press <√> to confirm the new setting.
- **Hue**
  Camera image hue level is adjustable. Select from the range between -12 to +13. Press <√> to confirm the new setting.

6.5.4 Backlight

The Backlight Compensation function prevents the center object from being too dark in surroundings where excessive light is behind the center object. Select "**On**" or "**Off**". Press <√> to confirm the new setting.

6.5.5 Digital Zoom

The camera's digital zoom is selectable in steps between x2 to x8. Select the desired zoom or "**Off**". Press <√> to confirm the new setting.

6.5.6 IR Function

The IR Function setting activates two functions: IR mode, which is the IR Cut (IRC) filter for electronic day/night operation and, on the CM-4221-10-I and CM-4221-11-I cameras, activates the IR LED illuminator for use in low-light conditions or at night.

- **IR Mode**
  The day/night IRC switching mechanism operates according to the ambient light level rather than activation of the IR LED mode. The IR Mode drop-down menu enables you to select from Auto/On/Off/Smart modes. The default mode is Smart. Following is an explanation of the four settings:
  - **Auto Mode**-the camera converts from Day mode (color) to Night mode (monochrome) automatically at nighttime or in low light conditions. When there is sufficient light, the camera converts automatically from Night mode to Day mode.
  - **On**-activates IR mode (puts camera into monochrome/Night mode).
  - **Off**-deactivates IR mode (puts camera into color/Day mode).
  - **Smart**-Smart Mode enhances monochrome/Night mode stability when IR illumination is dominant and keeps the camera from switching between Day and Night modes. In this mode, the IR Cut filter is on (i.e. monochrome/Night mode) when the IR LED illuminator also is activated. This prevents the camera from returning to color/Day mode.

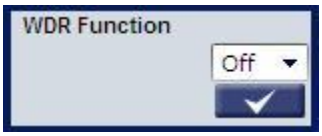
  Press <√> to confirm the new setting.
- **IR LED**
  This setting is used in low-light conditions or at night. IR LED lights are turned on or off, depending on the light sensor. The default mode is "**Auto**". Two settings are available:
  - "**Auto**"-the light sensor operates automatically.

- "**Off**"-the IR light is always off.

Press <√> to confirm the new setting

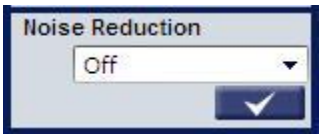
NOTE: The IR LED function is available only on CM-4221-10-I and CM-4221-11-I.

6.5.7 WDR Function



The Wide Dynamic Range (WDR) function is for resolving high contrast or changing light issues in order to enhance the video display. The WDR is adjustable from "**Low**", "**Mid**" to "**Hi**". Higher level of WDR represents wider dynamic range, so that the camera can capture a greater scale of brightness. Press <√> to confirm the new setting.

6.5.8 Noise Reduction



The camera provides multiple Noise Reduction options for delivering optimized image quality, especially in extra low-light conditions. Level options for 3D Noise Reduction (3DNR) include "**Low**", "**Mid**" and "**Hi**". A higher level of 3DNR generates relatively enhanced noise reduction.

The proprietary Smart Picture Quality (SPQ) video processing method provides clear images even in a low-light environment and can drastically minimize motion blur. The combination of SPQ and 3DNR at different levels yields exceptional video performance in various conditions.

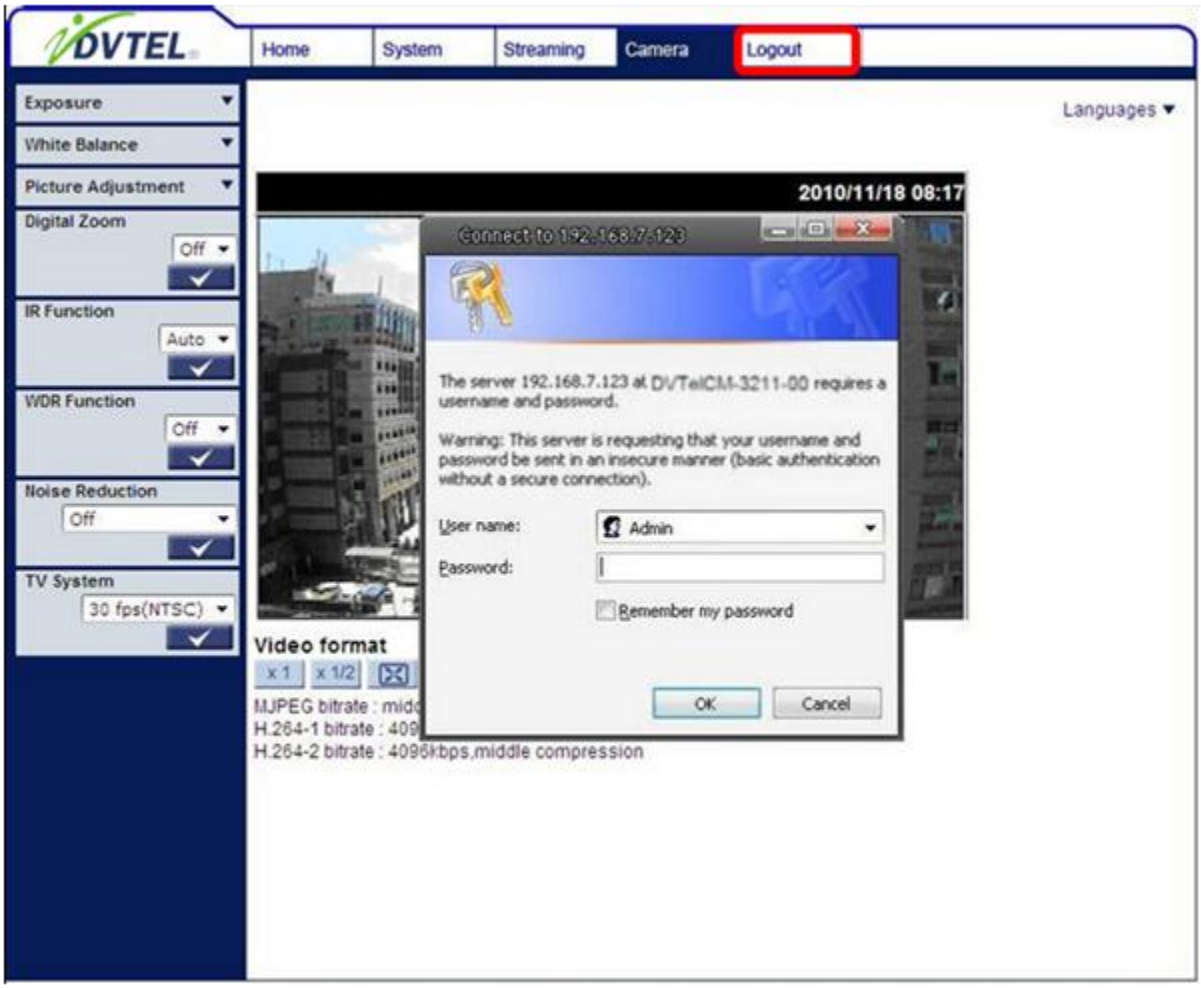
Noise Reduction is adjustable from "**3DNR Low**", "**3DNR Mid**", "**3DNR Hi**", "**SPQ**", "**SPQ + 3DNR Low**", "**SPQ + 3DNR Mid**", to "**SPQ + 3DNR Hi**". Press <√> to confirm the new setting.

6.5.9 TV System

Select the video format that matches your TV system: "**25 fps (PAL)**" or "**30 fps (NTSC)**". Press <√> to confirm the new setting.

6.6 Logout

By pressing the <**Logout**> tab in the navigation bar at top of the page, the login window pops up and enables login with another user name.



CM-4221 Installation Manual

7 Appendix

The following sections are included:

- Appendix A: Technical Specifications
- Appendix B: Internet Security Settings
- Appendix C: Install UPnP Components
- Appendix D: Deleting the Existing DC Viewer
- Appendix E: Deleting Temporary Internet Files
- Appendix F: Contacting DVTel
- Appendix G: Accessories

7.1 Appendix A: Technical Specifications

Camera				
Image Sensor		1/2.7" Progressive CMOS		
Effective Pixels		1920 (H) x 1080 (V)		
Shutter Speed		1.0 - 1/10,000		
Enclosure		Tamper-resistant surface mount plastic case		
Sensitivity		0.2 Lux @ F1.2 in color mode; 0.02 Lux in night mode		
Lens				
Lens Type		**CM-4221-00**	**CM-4221-01**	**CM-4221-10** **CM-4221-10-I** **CM-4221-11** **CM-4221-11-I**
		Varifocal F 1.2/f=2.7-9mm	Varifocal F 1.2/f=2.7-9mm	Motorized F 1.2/f=2.7-9mm
Operation				
Resolution		Full HD 1080p (1920 x 1080)/SXGA (1280 x 1024)/HD 720p/D1/CIF/VGA/XGA/SVGA		
Video Streaming		Simultaneous H.264 1080p (25/30 fps) + H.264 D1 (25/30 fps)		
Image Setting	Brightness	Manual		
	Exposure	Auto-iris Auto/Fixed Shutter		
	Sharpness	Manual		
	Contrast	Manual		
	White Balance	Manual/Auto/ATW		
	Saturation	Manual		
	Hue	Manual		
	Backlight Compensation	On/Off		
	Digital Zoom	Supported (x2 to x8)		
	WDR	On/Off + three levels		
	3D Digital Noise Reduction	On/Off + three levels (with Latitude) On/Off + six levels (without Latitude)		
	Privacy Mask (Video Mask)	Web interface: On/Off. Up to five embedded web interfaces are supported in the streaming video output, but are not supported by Latitude. In the Latitude interface, the Privacy Mask is independent of the camera's on-screen display and is not embedded.		
	IR Function	Day/Night (Auto/On/Off/Smart)		
Audio	Two-way Audio	Line out, Line in		
	Compression	G.711/G.726 (not supported by Latitude)		
Alarm	Input	5V 10kΩ pull up		

	Output	Photo Relay Output 300V DC/AC
Event Notification		HTTP, FTP, SMTP
Languages		English, German, French, Italian, Simplified Chinese, Traditional Chinese, Russian, and Korean

Analytics		
Motion Detection		On/Off, plus sampling pixel interval, detection level, sensitivity level, and time interval settings.
Regions of Interest		Web interface: Configurable up to 10 ROI masks. Latitude interface: Configurable up to six ROI masks.
Motion Metadata		Streaming and recorded video includes per frame level motion metadata. Motion metadata is archive searchable by ROI via the Latitude ControlCenter user interface.
Triggered Actions		Notifications, On-Event Recording and Relay Output Command. Includes configurable alarms and broad range of recording on detection of video and snapshots.
Tampering Alarm		On/Off, plus duration, on-event notification, recording to SD card, and more are supported as events in Latitude.
Network		
Interface		10/100Mbps Ethernet, Auto-sensing, Full/Half-Duplex
Protocol		IPv4/v6, TCP/IP, UDP, RTP, RTSP, HTTP, HTTPS, ICMP, FTP, SMTP, DHCP, PPPoE, UPnP, IGMP, SNMP, QoS, and ONVIF
Password Levels		User and Administrator
Security		HTTPS, IP Filter, IEEE 802.1x
Internet Browser		Internet Explorer (6.0+), Chrome, Firefox, Safari
User Accounts		20
Mechanical		
IR LED Illuminator (CM-4221-10-I/11-I)	Working Distance	50m
	Wavelength	850nm
	LEDs	24
Connectors	Power	3-pin terminal block
	Ethernet	RJ-45
	Micro SD	SDHC support. Supports up to 32GB MicroSD card (card not included).
	Audio	4-pin terminal block with audio input and audio output.
Alarm		4-pin terminal block with 2-pin alarm input and 2-pin relay output.
Analog Video		1.0V p-p/75Ω, BNC (continuously enabled)
LED Indicator		Power, Link, ACT
Weatherproof Standard		IP66 on CM-4221-01, CM-4221-11, and CM-4221-11-I
Mechanical IR Cut Filter		On CM-4221-01, CM-4221-11, and CM-4221-11-I

General	CM-4221-00	CM-4221-01	CM-4221-10 CM-4221-10-I CM-4221-11 CM-4221-11-I
Dimensions	149 x 131 mm (5.9 x 5.2 in.)	151 x 130 mm (5.9 x 5.1 in.)	151 x 130 mm (5.9 x 5.1 in.)
Weight	0.7 kg (1.5 lbs.)	0.8 kg (1.8 lbs.)	0.8 kg (1.8 lbs.)
Power Consumption	5W	12W including heater and fan	CM-4221-10: 15.6W CM-4221-10-I: 18.6W CM-4221-11: 15.6W CM-4221-11-I: 18.6W
Operating Temperature	-10°C-50°C (-14°F-122°F)	@12VDC: -30°C-50°C (-22°F-122°F) with heater and fan	@24VAC: -35°C-50°C (-31°F-122°F) with heater and fan
Humidity	10-90% non-condensing		
Power Source	12VDC/24VAC/PoE		
Regulatory	CE-marked, EN55022-1998 Class A, EN55024, FCC Part 15 (Subpart B, Class A) UL, RoHS Compliant		
Warranty	Lifetime covering parts		

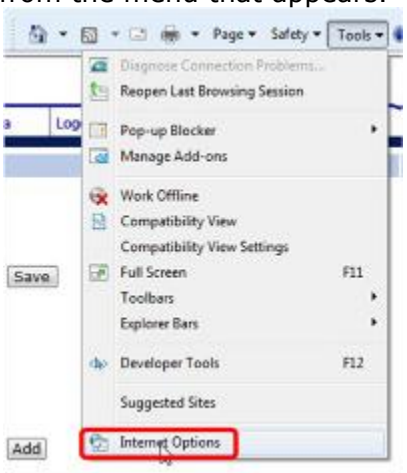
7.2 Appendix B: Internet Security Settings

If ActiveX control installation is blocked, either set Internet security level to default or change ActiveX controls and plug-ins settings.

Internet Security Level: Default

1.) Start Internet Explorer (IE).

2.) From the Command Bar toolbar, click "**Tools**" and select "**Internet Options**" from the menu that appears.



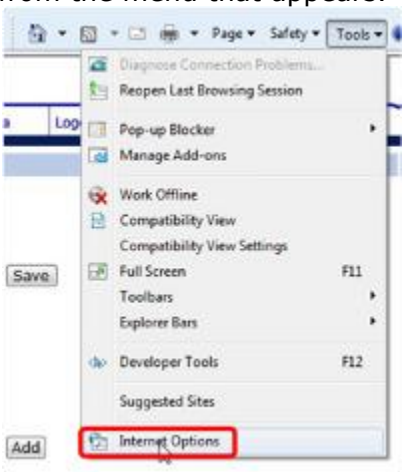
3.) In the <**Internet Options**> dialog that appears, click the "**Security"** tab. If not selected, click Internet.

4.) If the settings are not defined as default, click "**Default Level**" and move the Allowed levels for this zone slider to "**Medium-high**" and click "**OK**".

5.) Close all browsers and reopen so that the settings take effect.

ActiveX Controls and Plug-ins Settings - Creating a Custom Level

1.) From the Command Bar toolbar, click "**Tools**" and select "**Internet Options**" from the menu that appears.



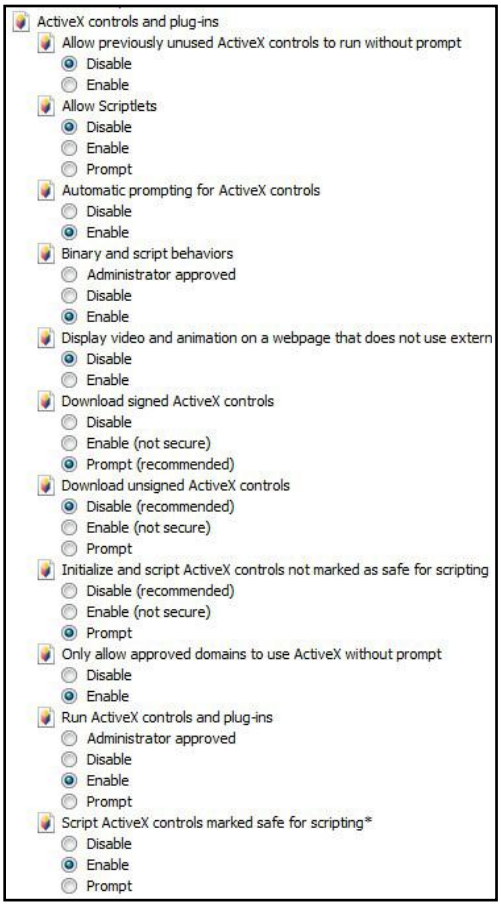
2.) In the <**Internet Options**> dialog that appears, click the "**Security**" tab, and if not selected, click

3.) Click "Custom Level".

4.) In the dialog that appears, under "**ActiveX controls and plug-ins**", set ALL the following items to "**Enable**" or "**Prompt**".

ActiveX controls and plug-ins settings:

a. Automatic prompting for ActiveX controls
b. Binary and script behaviors
c. Download signed ActiveX controls
d. Download using ActiveX controls
e. Initialize and script ActiveX not marked as safe
f. Run ActiveX controls and plug-ins
g. Script ActiveX controls marked safe for scripting



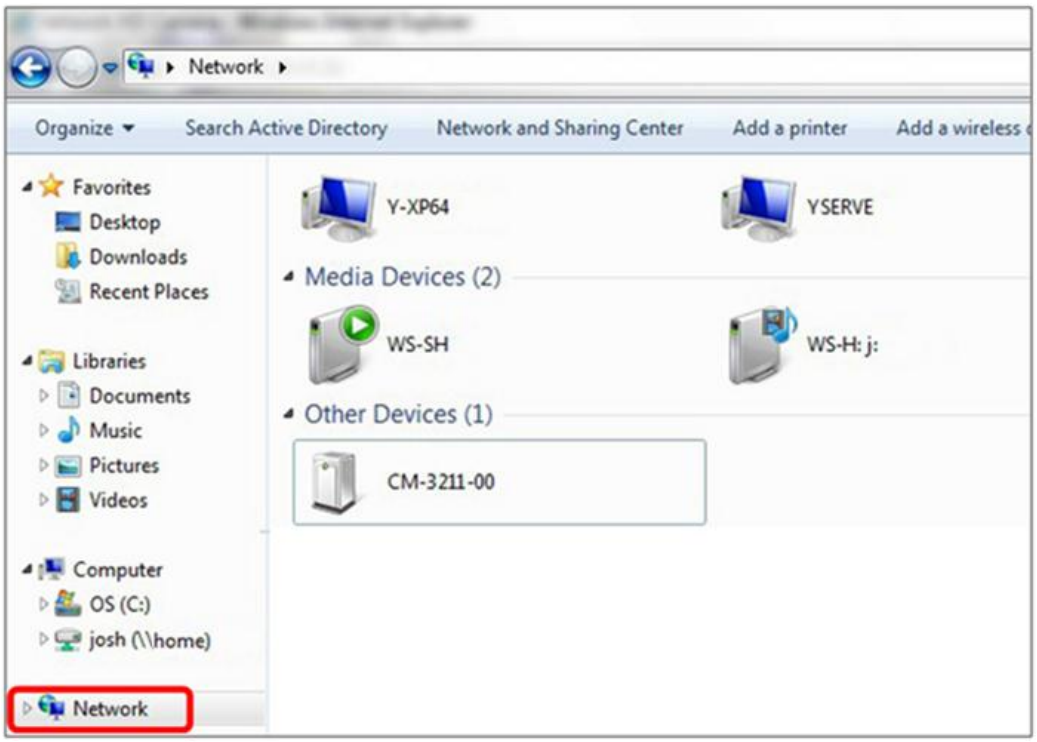
5.) Click "**OK**" to accept the settings and close the <**Security**> screen.

6.) Click "**OK**" to close the <**Internet Options**> screen.

7.) Close the browser window and restart IE again to access the camera.

7.3 Appendix C: Install UPnP Components

Follow the instructions below to enable UPnP so that the camera can be discovered and displayed in Network locations under *Other Devices*:

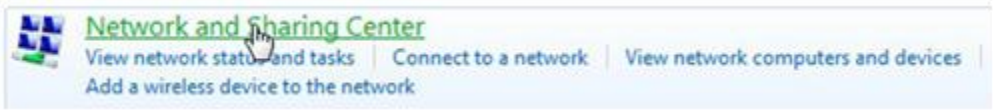


To Enable UPnP Discovery

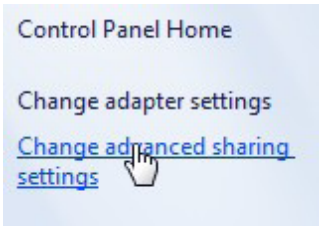
1.) Click (Start) and select "**Control Panel**".

2.) Click on "**Network and Internet**".

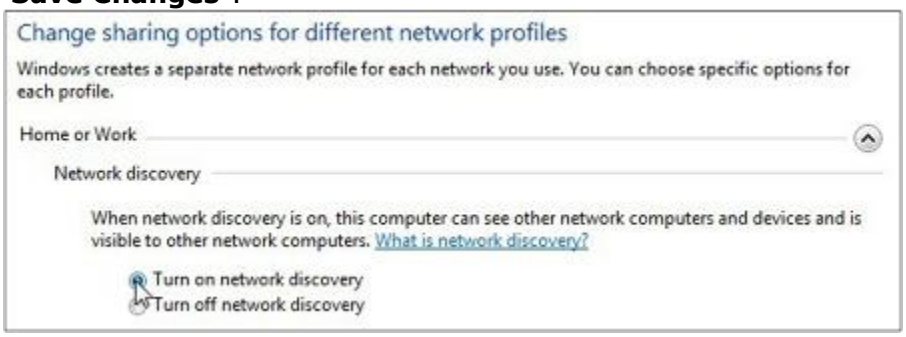
3.) Click on "**Network and Sharing Center**"


Network and Sharing Center
View network status and tasks
Connect to a network
View network computers and devices
Add a wireless device to the network

4.) Click on "**Change Advanced Sharing Settings**".



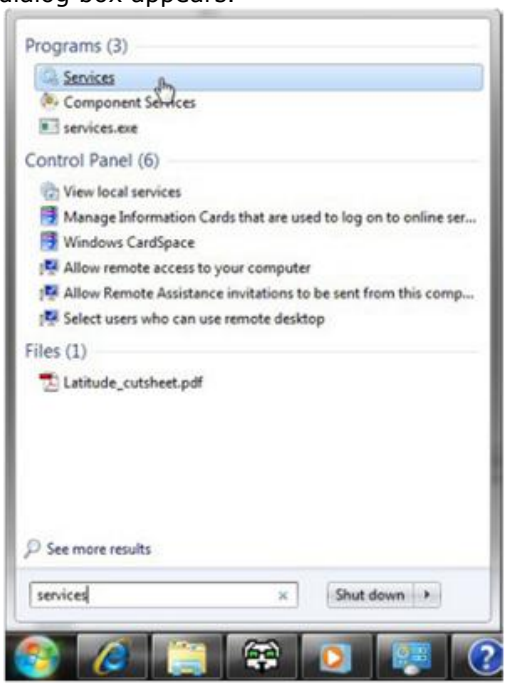
5.) Expand the Home or Work node, select "**Turn on network discovery**" and click "**Save Changes**".


Change sharing options for different network profiles
Windows creates a separate network profile for each network you use. You can choose specific options for each profile.
Home or Work
Network discovery
When network discovery is on, this computer can see other network computers and devices and is visible to other network computers. What is network discovery?
Turn on network discovery
Turn off network discovery

Note: Network discovery requires that the DNS Client, Function Discovery Resource Publication, SSDP Discovery, and UPnP Device Host services are started, that network discovery is allowed to communicate through Windows Firewall, and that other firewalls are not interfering with network discovery.

To check that the UPnP Device Host services are running

1.) Click (Start) and type in the "**Search programs and files**" field "**services**" and then select "**Services**" from the displayed Programs. The <**Services manager**> dialog box appears.



2.) In the <**Services manager**> dialog box, scroll down the list to *UPnP Device Host* and verify that it shows the status "**Started**". If "**Started**" is not displayed, right-click on your mouse and select "**Start**" from the shortcut menu.

7.4 Appendix D: Deleting the Existing DC Viewer

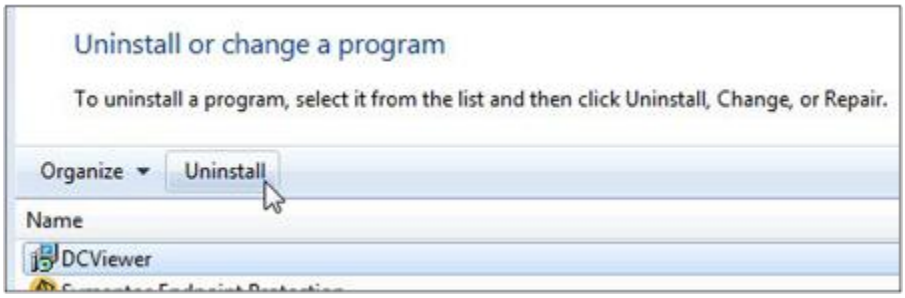
Users who have previously installed the DC Viewer in the PC should first delete the existing DC Viewer from the PC before accessing the camera.

To delete a legacy DC Viewer

1.) Click **Start** and select "**Control Panel**".

2.) In the **Control Panel**, click "**Uninstall a program**".

3.) From the installed program list, select "**DCViewer**" and then, on the banner bar, click "**Uninstall**".


Uninstall or change a program
To uninstall a program, select it from the list and then click Uninstall, Change, or Repair.
Organize
Uninstall
Name
DCViewer

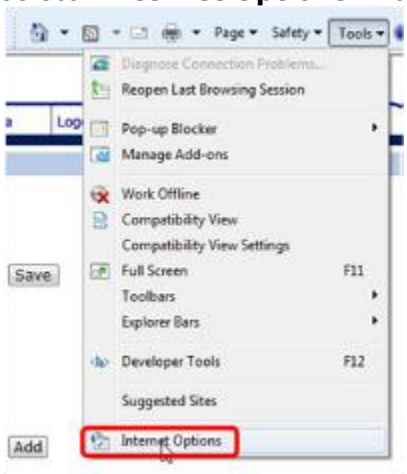
4.) If prompted to confirm the Uninstall, click "**Yes**".

7.5 Appendix E: Deleting Temporary Internet Files

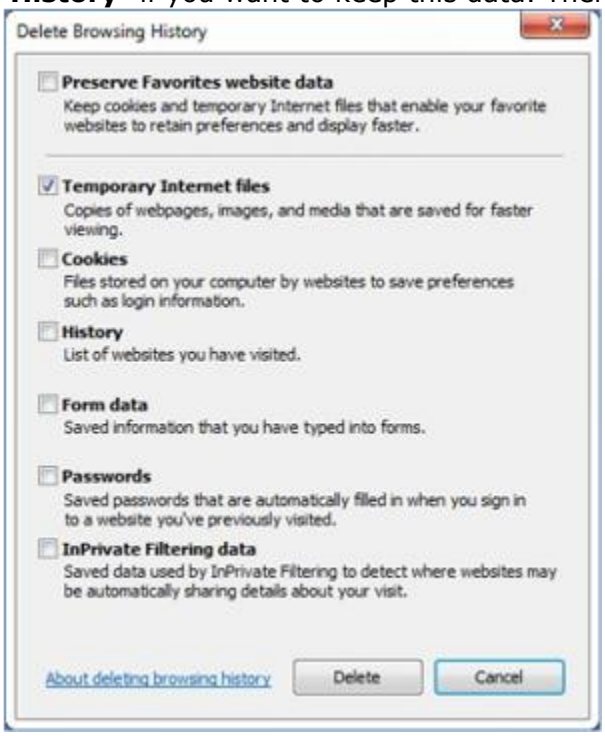
To improve browser performance, we recommend cleaning up the all the files in the Temporary Internet Files. The procedure is as follows:

To delete temporary Internet files

1. In Internet Explorer (IE), from the Command Bar toolbar, click "**Tools**" and select "**Internet Options**" from the menu that appears.



2.) In the Internet options dialog, click "**Delete**". In the *Delete Browser History* dialog that appears, select "**Temporary Internet files**". Deselect "**Cookies**" and "**History**" if you want to keep this data. Then click "**Delete**".


Delete Browsing History
Preserve Favorites website data
Keep cookies and temporary Internet files that enable your favorite websites to retain preferences and display faster.
Temporary Internet files
Copies of webpages, images, and media that are saved for faster viewing.
Cookies
Files stored on your computer by websites to save preferences such as login information.
History
List of websites you have visited.
Form data
Saved information that you have typed into forms.
Passwords
Saved passwords that are automatically filled in when you sign in to a website you've previously visited.
InPrivate Filtering data
Saved data used by InPrivate Filtering to detect where websites may be automatically sharing details about your visit.
About deleting browsing history
Delete
Cancel

7.6 Appendix F: Contacting DVTel

DVTel, Inc. is a multiple award-winning market leader in the development and delivery of intelligent security solutions over IP networks. We provide unified solutions that leverage existing network infrastructure, while providing unmatched levels of flexibility, scalability, cost-effectiveness—all backed by superior customer support.

To contact us:

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To request the latest versions of firmware and software or to download other product-related documents, visit http://www.dvtel.com/support. If you have obtained a login go to our support gateway. For assistance, email us at support@dvtel.com or phone 1-888-DVTEL77.

7.7 Appendix G: Accessories

The following accessories are available from DVTel for installation of your Quasar CM-4221 Series IP Mini-dome Camera. For more information on available options, contact your DVTel sales representative or visit www.dvtel.com to request details on where to get the accessories you need.

Image	Name	Description
	CM-RCSD-0	CM Series Mini-dome Recessed Mount
	CX-TRIA-0	CM Series Mini-dome Corner Mount

Image	Name	Description
	CM-CAPX-0	CM Series Mini-dome Pendant Mount
	CX-ARMX-0	Short Arm Bracket
	CX-ARMX-1	Long Arm Bracket
	CX-CRNR-0	Corner Bracket fits CX-ARMX-0 and CX-ARMX-1.
	CX-F125-0	1 1/4" Pole Mount Adaptor adapts all pendant cameras to 1-1/4" male pipe threads.

Image	Name	Description
	CX-F150-0	Adapts all pendant cameras to 1-1/2" male pipe threads.
	CX-F150-1	Pendant Mounting Adapter Ring adapts all pendant cameras to common legacy 1-1/2" female pipe mounts. Fits DVTel legacy mounts and many others.
	CX-PIPE-0	Short Pipe straight tube (9.8") for pendant mount

Image	Name	Description
	CX-PIPE-1	Long Pipe straight tube (19.7") for pendant mount.
	CX-PLBX-0-Pole-Mount Box	Pole-Mount Box fits CX-ARMX-0 and CX-ARMX-1.

Image	Name	Description
	CX-POLE-0	Pole-Mount Bracket fits CX-ARMX-0 and CX-ARMX-1.
	CX-WLBX-0	Wall Mount Box fits CX-ARMX-0 and CX-ARMX-1.